AMERICAN AGRICULTURIST

FOR THE

FARM · GARDEN · & · HOUSEHOLD

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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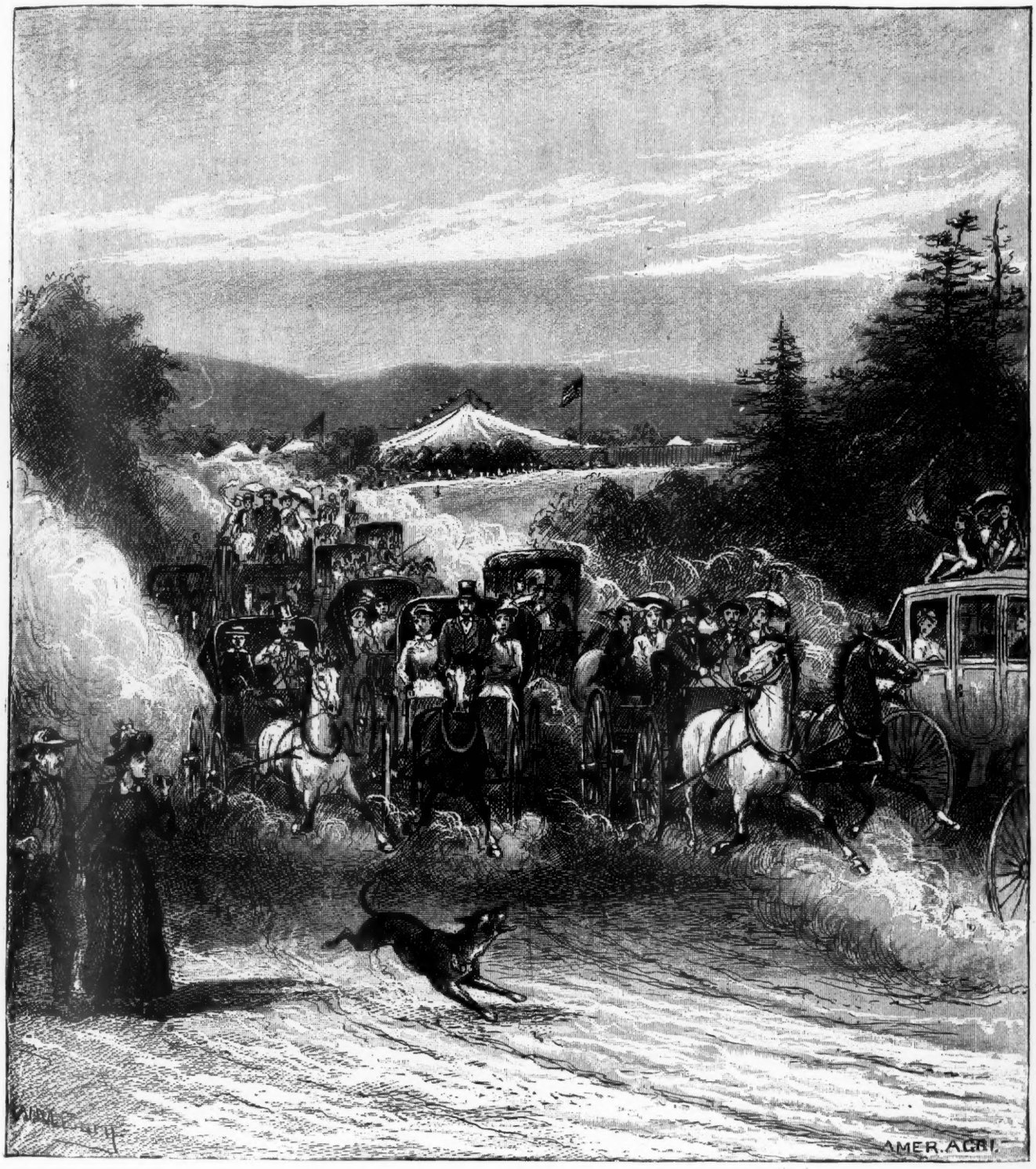

COMING HOME FROM THE FAIR.

Drawn (by W. M. Cary) and Engraved for the American Agriculturist.

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September.

Dead in the air, and still the leaves of the locust and walnut
Lazily hang from the boughs, in laying their intricate outlines
Rather on space than the sky,—on a tideless expansion of slumber. BAYARD TAYLOR.

FARM AND GARDEN WORK

SEPTEMBER

The general testimony is in favor of early sowing of wheat. It is of the first importance to prepare a good seed-bed, using the harrow and roller until the soil is thoroughly pulverized. No good farmer will sow wheat broadcast. If he cannot afford to own a drill he can hire one, and the saving in seed will pay for the rent of the the machine. One great benefit from the use of the drill is that it puts the seed at a uniform depth below the surface. Do not change the kind of wheat without good reason. If a variety is highly praised, and appears to be better than that now grown, try a small quantity, giving it the same soil and care as the general crop, sowing enough to give seed for next year, should it turn out well....There is, in most localities, a frost about the latter of this month. This catches the buckwheat when the flower clusters are still in bloom, while at the lower part of the cluster there is ripened grain. If the crop is cut when frost appears to be imminent, and placed in good-sized gavels, the partly matured grain will go on and ripen....The root crops will grow rapidly these cool nights, and may still be thinned to advantage, of course keeping them clear of late weeds....In localities where there are early frosts, cutting up corn will be the most important work of the month. Every farmer has his own view of the number of hills that should go to the stook. A short-handled hoe, with the blade ground sharp and kept so by the use of a file while at work, will be found to be the most convenient implement. Cut low, to leave as little stubble as possible....Fodder corn should be cut upon the first intimation of frost. If cut and laid in the rows, it will not be injured by the frost as much as if standing.

Live Stock Notes.

Cows, if allowed to fall off in their flow of milk, will not usually regain it. If the pastures are deficient, supplement them with fodder corn, and rations of corn meal, ground oats and bran. In the cooler days of this month, and those that follow, excellent butter may be made, equal to that made in June. Cows, to calve in winter, should be dried off about two months before their time, and be well fed while dry....The period of gestation in ewes is about one hundred and fifty days, and the ram should be turned in with them at the proper time, to bring early lambs. A Southdown ram, used with common, or grade ewes, will produce mutton and lamb of the finest quality. A cross with the Cotswold gives a much heavier carcass. The ram should not run continuously with the flock, but be kept by himself and be well fed....Fattening of swine and other animals, should begin as soon as cooler weather comes, as flesh is laid on much more readily than in cold weather, when a large share of the food is consumed in keeping up the animal heat. Good food in variety, as much as the animals will eat up clean, but no more, with a good supply of fresh fodder corn as an appetizer, is the whole secret of economical fattening. If any food is left in the troughs unconsumed, shorten the rations somewhat. Do not forget to keep salt within reach of the animals.

Orchard and Fruit Garden.

Grapes should be packed in boxes holding three and five pounds, of wood or pasteboard, according to the usage of the market. Large quantities are now shipped in handled baskets, holding ten pounds, with a cover of some thin stuff. Use scissors in gathering; those which hold the bunch after it is cut are convenient, and allow one to avoid handling the fruit. The fine appearance of the cluster depends upon preserving the bloom.... In all but the extreme northern localities, fall-planting is advisable, provided the soil can be properly prepared. At all events, order the trees in autumn, and heel-in carefully, and they may be planted in either fall or spring.....Young trees should have all superfluous shoots removed, and the head brought into shape by judicious pruning. ....This is the usual month for budding peach trees; any other trees may also be budded, if the bark will lift readily from the stock.

Kitchen and Market Garden.

Though work does not press now as it does in the spring months, and the gardener can take a vacation, yet there are several important things that must not be overlooked....Sow spinach, and German greens or sprouts, to winter in the open ground; also onion sets and shallots. Sow early cabbages, cauliflowers and lettuce, to raise plants to be wintered in cold frames. The plants must be neither too large nor too small, hence the date of sowing is important. Near New York many sow on the 15th; others find it safer to make two sowings, one on the 11th, and the other on the 16th of this month... .How the weeds will grow! Hoe between the rows of root crops until the leaves prevent. Hoe cabbages and cauliflowers often. Help any backward ones with manure water, or a slight dressing of guano. Keep celery clear of weeds and hoe to promote growth, which should be rapid these warm days and cool nights.

Flower Garden and Lawn.

Cooler autumn weather will promote the growth of the grass, and it must therefore be mowed more frequently. Sow seed where the grass is thin.... Stakes will be needed by Dahlias, Gladioluses, Tuberoses, etc, to secure them in heavy storms. Dahlias need stakes at the side branches more than at the main stem....Make a bed of violets for flowers in early spring. Prepare a frame with well enriched soil, and plant with vigorous plants from runners....Hardy plants that need it, may have the clumps divided and set in fresh soil.... Hand-pick the caterpillars that sometimes so disfigure Chrysanthemums, and destroy the Black Aphis with a free use of tobacco water. Plants for blooming indoors should be potted as soon as they are well set with buds, placing them in the shade until they recover from the effects of the removal.

Greenhouse and Window Plants.

Whether the plants are to go into the greenhouse or windows, have all ready to receive them in case they must be taken in suddenly....If any plants that have been set out in the border are to be repotted, do it early. It may be necessary to cut back both top and roots....Hanging baskets, stands, etc., should be filled early, using a plenty of ivy to twine about the handles, and to hang over the edges.....Sow seeds of mignonette and any others that may be desired for the window garden. ....Plants in pots that have been set outside for

the summer, should be pruned into proper shape and the pots washed. If the ball shows that the roots are crowded and cramped, replant in a pot a size larger. Top-dress all with rich soil, removing the surface layer of old soil....Provide for winter all matters likely to be needed. The cellar will make a good "potting shed," where should be stored good potting soil, sand, moss, pots, etc., etc....Bulbs should be potted as soon as they can be procured from the dealer. Use well-drained pots, and a light, rich soil, containing sufficient sand to keep it open. Set in a dark place.

In the Apiary.

BY WM. B. TREADWELL.

Successful wintering of bees depends, to a great extent, on their management this month. Late, unsealed honey is poor food for winter, and should never be used for feeding purposes. If extracting be continued late, there is more or less danger, unless full sealed combs have been set aside for this purpose; otherwise the late unsealed honey may be extracted, and good sugar syrup be substituted.

There are many localities where fall flowers abound, and where the principal surplus of the year is gathered this month. In harvesting fall honey, the extractor is *invaluable*, for the bees will not store the honey in boxes when combs must be built, nearly so fast as in the brood chamber, where instinct teaches them it must be filled for winter. This is also a good month to introduce new blood into the apiary. Keep no queenless stocks after this month, unless it is intended to introduce queens, in which case, one or two combs of hatching brood, from stocks that can best spare them, should be inserted, in order to secure young bees for winter. If there are still surplus boxes on, it is quite necessary to keep the cap of the hive warm at night by artificial means, as the bees are very apt to leave boxes when the nights are cool, and thus retard their work to such an extent that we have many unfinished boxes, where, with the necessary warmth, they would have been completed.

Where the honey harvest ceased last month, the bees may now be divided, giving them young queens. The honey flow of this month will enable them to get in good condition by the time they go into winter quarters. Where any stocks have old queens, these should be destroyed, and young queens introduced. With a little care, the supply of queens can be kept on hand. At this time of the year, should feeding be necessary for this purpose, feed as fast as possible, unless it is desired to stimulate brood rearing, when the entrance feeder may be used with good effect. Keep the queens laying as long as possible, to have a populous stock.

A Good Western Grass.

PROF. CHARLES E. BESSEY, NEB.

There is scarcely a farmer, in the East, who does not know Quack grass, (*Agropyrum repens*); and who, knowing it, does not look upon it as a vile weed. A very near relative of the Quack grass, growing upon the Western plains, and in the Rocky Mountains, seems to be doing its best to redeem and bring into credit the name of *Agropyrum*. This Western grass, which has been called Colorado Blue Grass, Blue Stem, Gramma (erroneously), Wild Wheat Grass, etc., etc., resembles the Quack grass in its structure, but can at once be distinguished from it by its light bluish color. Botanically, it has by some been regarded as a marked variety of the Eastern grass, but others consider it to be distinct, an opinion with which I am inclined to coincide. The name under which it is known in the books is *Agropyrum glaucum*—the specific name referring to the glaucous appearance of the plant, which is in marked contrast to the bright-green color of its Eastern relative.

Cattle feeders in Montana, Wyoming, Colorado, and Western Nebraska unite in considering it one of their most valuable grasses. It appears to be highly nutritious, and it is greatly relished by cattle.

Fruits for the Northwest.

PROF. J. L. BUDD, IOWA.

APPLES.—In the way of apples for the trying regions of North Minnesota, and Dakota, and the south half of Manitoba, some of the Hybrid crabs, originated by Peter M. Gideon and others, must be included in the list. Many of these, if worked on hardy roots, will prove more valuable at the extreme north, as they are less subject to blight than farther south in the prairie States, where the summer heat is more intense and continuous. For really good dessert apples for winter use, the Red Anis, Blue Anis, and Mottled Anis are very promising. Our reports from trial stations in this region are favorable to the idea that they are as hardy in tree as any of the hybrid crabs, and in the collection of cross sections of stems of ten year old trees from the grounds of A. G. Tuttle, of Baraboo, Wis., we find the wood of the Blue Anis to be brighter and sounder than that of any of the crabs included. Theoretically the varieties of the Anis should be hardy, as the climate is quite as severe in their native home as in any part of Siberia, where crabs larger than early Richmond cherries are grown. Yet we hear of losses of the Anis by winter killing in North Dakota and South Manitoba, but, so far as known, the trouble has come from freezing of the relatively tender seedling roots on which the trees were grafted. Here at Ames, Iowa, where the summer heat permits the ripening of the large dent corn, the above varieties of the Anis have little relative value, as they are only medium sized fall apples. But taken north, to points where only the earliest varieties of flint corn can be ripened during the most favorable seasons, the Anis becomes a winter fruit of about the size of Fameuse, and, in the words of Mr. Gibb, "A dessert apple of fine quality."

Our northern nurserymen should try working the varieties on roots of the crabs, or on the seedlings of the hardiest Russian apples. We also have the best reasons to believe that such Russian apples as Garden Apple, Silken Leaf, Hibernal, and many others recommended for northern culture in our Bulletin of 1885, will, if worked on hardy roots, prove profitable in any part of the extreme Northwest, where the earliest varieties of flint corn will ripen.

PEARS.—As cooking pears of fine quality are grown as far north on the Volga as the Anis apple, we believe they can be grown in Manitoba, if we had the native wild pears of North Russia to graft them on. Even in northwest Iowa, trees of the Gakovsky pear have been lost by the killing of tender seedling roots, on which we have been compelled to graft them. We shall try them north, worked on the roots of American Mountain Ash and the Thorn. As all the Russian pears root readily from the cion, they will soon become established on their own roots, if planted deeply on the dry soil of the northwest.

CHERRIES.—If any good cherry succeeds well in the far Northwest, it will be the small-leaved variety of the Vladimir, worked on the Sand Cherry, or the Wild Red Cherry (*Prunus Pennsylvanica*), both of which species are natives of that region.

PLUMS.—As to plums, those of Kazan, Russia, should succeed well grafted on the native wild plum roots; and select varieties of the wild plums of the upper Missouri and the Red River of the North, will be propagated for general planting in the near future by local nurseymen of the North.

GRAPES.—North of the limits where the Janesville and Coe grapes will ripen, the future grape is yet to be developed from the primitive species that thrive on the slopes of Turtle Mountain, by judicious crossing.

SMALL FRUITS.—By winter protection, by mulching, or earth covering, many varieties of the Strawberry and Raspberry may be profitably grown, and the Windom Dewberry will be apt to do better than in South Iowa. The Currants, native Gooseberries, and Dwarf Juneberries, can also be grown more profitably than at the South.

The whole question of abundant fruit growing in the extreme Northwest is only one of wise adaptation of varieties, modes, and methods, to the peculiar soil and climate of each particular soil and latitude. Nearly all the varieties of the apple, pear, plum, cherry, and small fruits, doing well on the Gulf of Finland, from Dorpat to Peterhoff, north of St. Petersburg, will do well in the parts of Alaska, where oats and early potatoes will ripen.

Malformation of Fish Fry.

SETH GREEN.

I dare say there are few readers of the *American Agriculturist* who are aware that the young of fish when first ushered into this world are as liable to unshapeliness, as are all other orders of creation. Indeed, some of them are even more peculiarly formed in some respects than any other living creature. But the good Lord has ordained as the fate of all deformed fish fry that they shall cease to live after a certain number of days, rarely ever exceeding thirty, and in the majority of cases not as much.

The causes through which these singular freaks are brought into existence are undoubtedly due to some of the unchangable laws of Nature being violated. I have never taken the trouble to ascertain accurately just what proportion of the young fish, which have passed under my observation, are thus deformed, but the percentage is very small, and at a rough estimate I should say about one in five thousand. With the varieties of fish I have hatched artificially, those among which most of the deformities occur are the brook and salmon trout, rather more of the former than of the latter. I can account for this on no other ground than from the fact that as a rule the brook trout inhabit small bodies of water, thereby rendering the possibilities of inter-breeding greater than with other fish. In any event, the percentage is so small that it in no sense interferes with the results of artificial propagation. The two kinds of malformations most frequent among the young fry are those with two heads and one body or trunk, and those known as Siamese Twins, from the fact of their being connected similarly to that celebrated monstrosity. Rare cases occur, where the fish have three heads on one body. Among the millions of young fry that have passed under my observation, I have seen but two specimens of this kind. The fry are also subject to all sorts of curvatures of the back bones. The curves are found at nearly all degrees, from a slight bend to a complete circle—the head and tail meeting. Some which are affected in this way are able to swim, but they go round and round in a continuous circle. Others are so knotted as to be unable to make any progress whatever. The cause of death to these peculiarities is the absorption of the yolk sac which is attached to each young fry. While this remains, food is unnecessary, and it will sustain life in the deformed fry for about thirty days, and in a healthy fish for about forty days. When it is gone, the former die of starvation, as they are unable to find food. For the sake of the experiment I have tried to prolong their lives by careful feeding, and have succeeded in so doing for about sixty days, after which they succumb. One peculiarity is that the malformed fry have a tendency toward a superabundance of heads rather than tails. I have never found a specimen with more than its share of caudal appendage.

Albinism is not unfrequent. The fish are perfect albinoes in every respect, even to the pink eyes. These we have raised and they are really beautiful little creatures, and when placed in a glass jar every bone and fiber in their nearly transparent bodies, fins and tails, can be plainly discerned. The great trouble in keeping them in ponds is that they show up so distinctly that they make an excellent target for king-fishers and fish hawks, which in spite of all our watchfulness are almost sure to capture them sooner or later. One of the albinoes we kept until it was three years old, when from some unknown cause it died. It was a female fish, and we took three hundred spawn from it, a good percentage of which hatched, but the young fry showed no pecularities different from other trout.

A B C of Agriculture.—No. IX.

CROPS.

The end and aim of agriculture is to produce crops. These are all things which are grown by the art of man from the soil. They are sometimes classified according to the uses and disposition made of them, but those vary so, according to the location of the farm as regards markets and facilities for transportation, that any classification becomes imperfect. Some are consumed by the family, others by the live stock, others are sold, others again are plowed under and used as manure. There is a class of crops almost universally sold, as cotton, tobacco, hemp, flax, hops, etc.; these are called "commercial crops." Another class is fed to the live stock, such as hay, corn fodder, mangels, etc.; those are "forage crops." Grain crops are both consumed and sold, and the same is true of fruit crops.

Experience has taught farmers that different crops require very different soils, manuring and subsequent tillage. Thus Indian corn, which is a rank feeder, does well on a fresh turned sod, with plenty of the rankest, coarse manure. The same treatment would not work well with potatoes, for example, which need a soil in better tilth, with manure more diffused and of a finer character. Besides, the rank manure would force a great growth of tops in potatoes and roots, and of straw in grain, to the detriment of both tubers, roots, and grain. Hence potatoes are often used to follow corn, because the soil is finer after a year's tillage and the disappearance of the sod, and because the manure which the corn only appropriated a portion of, is not so rank, and is well diffused through the soil, insuring almost a fair crop anyway, which will be all the better if some special fertilizer be added. Grain crops in like manner do best in most sections, on land which has been two or three years in tillage. They also make use of plant food not taken up by the previous crops; the tillage will have destroyed weeds and weed seeds; most of them demand, and all accept kindly, special fertilizers and "hand manures," such as ashes, bone-dust, nitrates, etc. When such crops as we have indicated have occupied the land, there will still remain plant food in considerable quantity, which even heavy crops will not have removed. In fact, the land may not only be in better tilth, but in better heart, than when the sod was turned and corn put in. Over a large part of the country, grass raised for hay is the most profitable crop the farmer can raise. Grass may be sown alone or with a grain crop. When Spring grains are raised, grass and clover may be sown with the grain, or after it is harvested. This gives the opportunity to sow in Spring, and if the "catch" is not good, the ground may be plowed or simply harrowed, and the grass and clover sowed in the late summer. It is customary with winter grains to sow grass seed with the grain in Autumn, and the clover in the Spring.

ROTATION.

It will be noticed that we have thus, in alluding to the common practice in the Northern States, described a simple succession of crops, the object of which is to secure thorough tillage and weed-killing, and, by means of useful and important crops, to prepare the ground to be laid down to grass, under which it may remain as long as good crops of hay are yielded. This system is called "the rotation of crops," for it may be, and usually is, repeated once in five, six or seven years, with very slight variation on as many different fields. Thus we have:

1st year, sod crop, heavily manured. (Corn.)
2d year, tillage crops. (Potatoes and roots.)
3d year, grain, seeding to grass.
4th, 5th and 6th years, grass for hay.

The grass sod, when hay begins to fail, still contains a great amount of fertility. The clover and other roots have brought much up from the depths, and if crops have been at times somewhat encouraged by "hand fertilizers," though the original heavy dressing of manure may have been all used up, the soil will have improved both in texture and fertility. The grass may, indeed, be kept up by top dressings, and on rich bottom land we find, not unfrequently, "permanent meadows," which yield paying crops year after year without manuring, and others which do so with occassional top dressings of bone, lime, ashes or similar manures. Whether these shall remain or shall be plowed up is a question of profit, and it is often the very worst policy to break up fairly profitable meadows. When again laid down to grass they may come full of weeds, that will give a bad flavor to butter, or the catch may be irreguiar, and it may be years before a good, even sod can be had, and the same is especially true of old pastures. Many different rotations have been recommended, but the principle is the same in all, and what rotations should be followed, and how they should be broken in upon with commercial crops, and whether or not to repeat our crop several years in succession, etc., are matters of policy for individuals to determine.

The work divides itself into the preparations of the seed bed, sowing or planting, tillage, harvesting and storing. As already intimated the seed bed for some crops may be a rough affair, simply a turned sod among the stumps of newly cleared land, or upturned old brush pastures, or reclaimed swamp-land. Others, like flax, require the ground to be most carefully prepared, and in fine, mellow tilth, newly worked so as to give the tender plants the best chance to get the start of weeds, and to cover the ground. So it is again a matter of experience either of the farmer or some one else, how to prepare the land to receive any crop. After tillage is most important for many crops, such as corn and cotton, potatoes, tobacco and roots, generally designated as "hoed crops." Others are left to themselves, as is generally customary with the small grains.

HARVESTING.

In harvesting, important principles are involved. While we allow root crops to grow as long as they can, and harvest them before frost damages them, grains, wheat, barley, oats, etc., need to be cut before perfectly ripe, if we would secure the largest amount of starch in the kernel, which improves the quality of the flour, the value for malting, etc., while, at the same time, the straw is better for feeding. Indian corn is very sensitive to frost. Sorghum should be cut when the grain is fully ripe to secure also the largest quantity of sugar in the stalk.

Grass when cut before it is in blossom is innutritious, and dries out greatly in making hay. When cut in full blossom, or when just out of blossom, it is in full flavor, in its highest degree of nutritious value, and loses far less in drying. When cut after the seed has formed, much of the foliage will have turned brown and dried, the stems will be woody, and, though it dries with comparatively little loss of weight, yet it is far less relished by cattle, and is less nutritious, while in very few grasses does the seed make good the damage to the rest of the plant. The same general principles apply to clover and other forage crops. Thus corn for ensiloing or for drying for coarse fodder should be cut up after the ears are well formed, and before they are fully ripe, for then the stalk is richer in sugar, has more foliage, and less woody fiber.

With commercial crops—tobacco, hops, etc., and textile crops, cotton, flax, hemp, etc.—in general, no rules can be laid down. Each has its peculiar treatment, which must be learned from practical men, or dear bought experience.

STORAGE.

It is exceedingly important that crops once raised should be stored so as not to deteriorate until the time comes either to use them or to market them. Here again we can lay down, for A. B. C., rules; that is, a few general principles, applicable to all crops, or to crops of each different class. Thus, of course, dry forage crops must be kept dry, under roof or in well-made stacks. The same is true of all grain before threshing, and after this kept in sacks or bins until it is disposed of. Roots, as a rule, require an equable temperature, as low as possible without actually freezing—best in pits, in the ground, well covered with straw, and topped with earth, and in such shape as to be easily accessible at any time. Onions are a notable exception in keeping best at an even temperature, a little below freezing, while parsnips, and some other roots, keep best where they grew, but are not accessible unless, or until, the frost is out of the ground.

DISPOSITION OF CROPS.

The final disposition of the crops remains to be considered. This is really the key to successful agriculture. It is a very simple matter if a shipper will come to the apple or peach orchard, pay so much cash for each basket or barrel, pick them himself, and take them away, or take the hay or any other crop upon the land for an agreed price; but when the producer must consider whether to sell, and what to sell; whether to feed, and what to feed; whether to hold for higher prices, or rush the crops, in whatever form, upon the market to secure current prices, are important considerations that he will find are subject to general rules.

Lawns on Sloping Banks.

It is exceedingly difficult to get a growth of grass from seed on a sloping bank, at an angle of even 15 degrees, because a heavy shower of rain on the sloping bank would wash off the fresh soil before the grass seed had formed enough roots to sufficiently hold the young grass in place. To remedy this the following plan will be found most effective. To an area 15 by 20—300 square feet—or in this proportion, be the area large or small, take two quarts lawn grass seed and mix it with four bushels of rather stiff soil, to which add two bushels of cow manure. Mix the whole with water to the consistency of thin mortar. This mixture is to be spread on the sloping bank, first having scratched the surface of the bank with a rake. It should be spread as thinly as will make a smooth and even surface, in short, just as plaster is spread on a wall. The grass seed will start rapidly, and quickly make a sod of the richest green; its smooth, hard surface preventing its being furrowed out by the rains. It will be necessary, until the grass has fully covered the surface, to keep the plastered bank covered with hay or straw to prevent the covering from drying or cracking; if the weather is dry, a gentle watering will hasten the growth of the seed. If sown at a season when the temperature averages 70 degrees, a green sward will be obtained in 15 days. By this method, using orchard or other strong growing grasses, no cheaper or better plan could be adopted for keeping up railroad or other embankments.

Lawns that have been worn out by neglect or other causes, or where it is convenient or desirable to renew them by plowing up, will be greatly benefited by running a light harrow over if the surface is large, or by a sharp, steel rake for smaller areas. After stirring the surface by such means, judiciously, so as not to injure the roots too severely, lawn grass should be sown over the surface, using about half the quantity of seed required for new lawns; over this—for each acre, or in the same proportions for lesser areas—sow 500 lbs. of some good "lawn enricher," again harrow or rake, and roll down firmly.

Thistles, dandelion or dock roots, can only be removed by cutting them out with a knife. There is no necessity, however, for cutting the whole root out. If cut below the crown the root will not start again into growth.

Ants are a pest that we are almost powerless to cope with. Nothing seems to poison them, as either their instinct teaches them to avoid the ordinary insect poisons, or their constitutions are proof against them. Everything we have tried has failed, except Pyrethrum or Persian insect powder. This applied by a bellows quickly suffocates them, but every insect needs to be struck by it, or it is useless, as it only kills them by suffocation. They can also be captured by placing fresh bones or molasses in plates around their haunts. They attack these before anything else. By persistently thus catching and destroying them two or three times a day, they may be permanently got rid of.

PETER HENDERSON.

Saving Farm and Garden Seeds.

J. E. GALE, VT.

Corn for seed should be selected when husking. When a good-sized, well-ripened and well-developed ear is found, pull the husks back, but not altogether. Spread the selected ears on a floor where they will not heat until the required quantity has been saved. Then braid it. Commence by taking an ear with plenty of husks, part them so as to make two strands, place the husks of a second ear between the two strands and begin to braid. Every time the left hand strand is brought over, add the husks of another ear. Two dozen ears are enough for a string. Tie the end with twine to prevent unbraiding. Stretch a telephone or fence wire between the rafters or plates of the corn house or some dry shed; hang the strings of corn on it, and there will be no loss by rats, mice, or squirrels; and the seed corn will keep in perfect condition for several years. A few hills of sweet corn should be allowed to grow for seed only. When the seed is fully ripe, the ears should be braided and hung up like field corn.

Wheat, rye, oats and barley should be thoroughly cured and dried before being put in the barn. Save the seed at threshing time; select only the very best part of the crop, and keep in a cool, dry place.

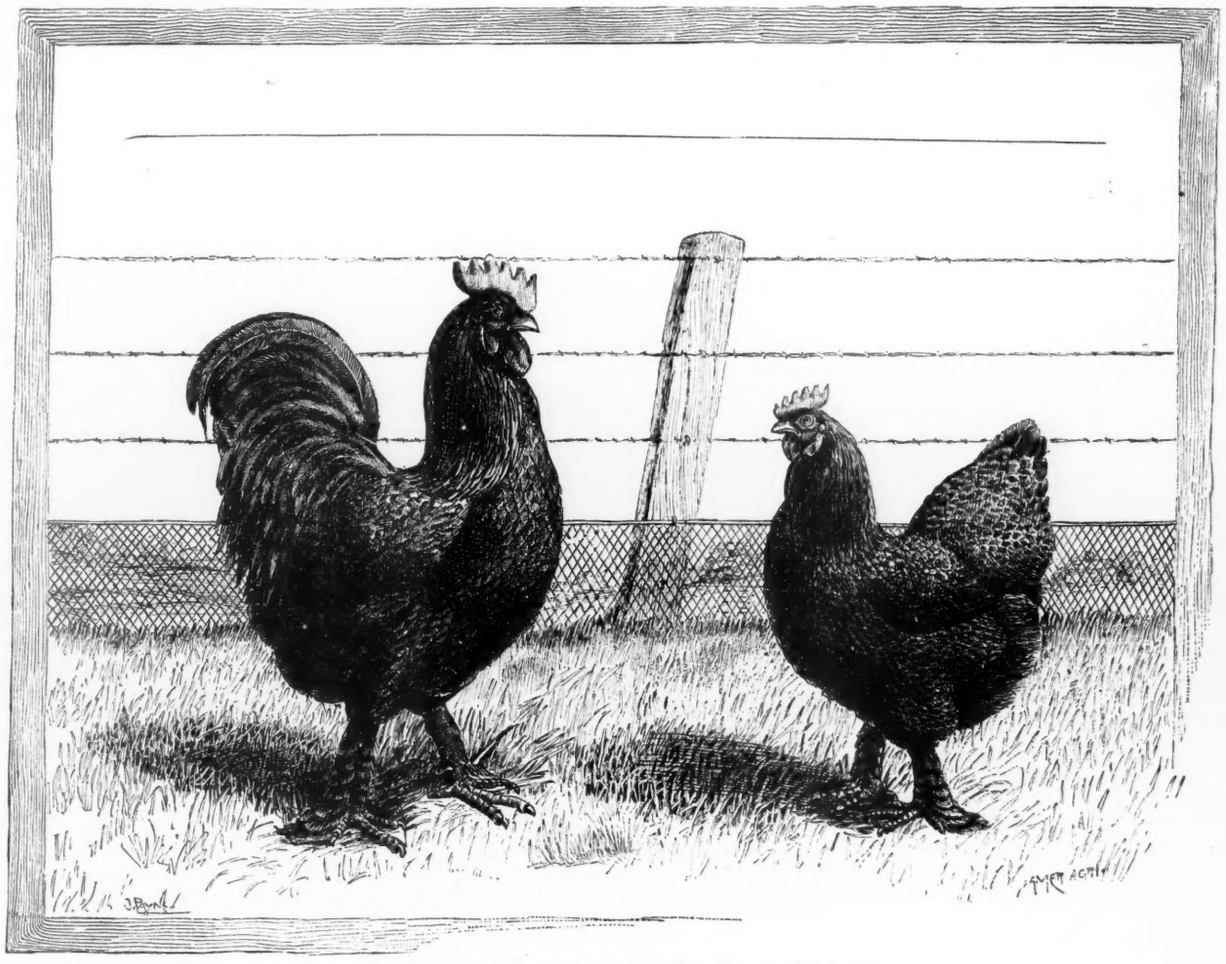
Grass seed of all kinds must be well ripened and dried. It should be free from spurious grass and weed seed. Thresh as soon as dry. If pure it need not be winnowed, unless it is to be sold. Keep in bags or barrels in a cool, dry place.

Peas and beans should be left on the vines until the pods are well wrinkled, when they should be picked and spread until they are quite dry. Small quantities may be shelled by hand, large crops are threshed with a flail. Keep them in a dry place.

Melon, cucumber, squash and pumpkin seeds should be taken only from ripe, perfect-shaped specimens. In a small way the seeds may be simply taken out, spread on plates or tins, and dried. Larger quantities have to be washed before drying, to remove the slime that adheres to them. When the seeds are thoroughly dried, tie them in bags, and keep in a dry place secure from mice and rats.

Beets, parsnips, turnips, carrots, onions, cauliflower and cabbage will not produce seed until the second year. Set out in early May, strong, well-matured plants of last season's crop. When the seed is ripe, cut the stalks and put under cover to dry; then beat out the seeds, and tie in paper bags.

Seeds of all kinds should be fully ripe when gathered, but it is also important to harvest them as soon as they are ripe. For keeping small quantities of seeds, paper bags are preferable to cloth, as they afford better protection against moisture and insects. Always mark each package with the name of the seed contained in it, and the year in which it grew. Cold does not injure the vitality of seeds, but moisture is detrimental to all kinds.



PURE-BRED LANGSHAN FOWLS.

Drawn and Engraved for the American Agriculturist.

ARABIAN PARTRIDGES.—Lady Anne Blunt, in her book of travels, with her husband, among the Bedouin tribes of the Euphrates, speaks of these as being very pretty. They are of a pale dove color, like that of the rocks among which they live. They have yellow legs, orange bills, and orange eyes, with black pupils. They are of small size, and, we presume, would be called quails among us, rather than partridges, because such as pass under this latter name are several times larger. As our sportsmen are now importing a considerable number of quails and partridges, different from our own, for the purpose of stocking the country with a greater variety of game, we wish they could be induced to add these beautiful Arabian birds to them. There is one great advantage in possessing such, as they would assist in devouring millions of insects, which, if left to propagate, become very injurious to the farmers' crops, and also of the smaller sorts of fruits.

The Langshan Fowls.

The Langshans were introduced to the western world from their native China, by way of England. They were first exhibited for prizes at the Crystal Palace, London, in 1871, after which occasion they were imported to the United States. In style the Langshan is similar to the Cochin China, but unlike the latter, its color is almost always solidly black. One of the valuable qualities of the Langshan fowl is large size—cocks tipping the scale at from nine to twelve pounds, and hens from six to nine. The flesh is delicate in flavor, and is exceedingly white, and the fowls are most excellent for the table.

At hatching the Langshans are parti-colored, black and white in nearly equal proportions, but by the time they reach three months of age, their distinctive black color has been put on. Their legs are feathered to the outer toes, and are of a purplish-black. The cock's comb is bright red, as are the ear-lobes and wattles of both himself and the hen, these latter points hanging well down. These fowls are good layers and kindly sitters, with fine, motherly traits; they are hardy, easy to raise and keep, thriving well when running at large, or in confinement, and have been very successful in proving their right to the consideration of breeders and fanciers, wherever they have found their way. The above illustration shows a typical pair.

Garden Culture of the Rose.

PETER HENDERSON.

One of the most difficult questions that the florist has to answer to his customers is what kind of roses are the most suitable to plant. If in a section of the country where there are only slight frosts, where the thermometer never falls lower than twenty to twenty-five above zero, then the Tea, Bourbon, Bengal, and Noisette, all of which are evergreen and ever-blooming, should alone be grown, as they will all stand over the winter in such a temperature. The so-called Hybrid Perpetual Roses, which are hardy in the Northern States, do little good in such climates as South Carolina, Louisiana and Florida, for the reason, that being decidious, that is, they lose their leaves in winter, the warm climate denies them the rest their nature requires, and conseqently they either die outright, or continue a feeble existence. It is not easy to draw the line at which these roses fail or where they succeed. As a rule it may be said, that the hotter the climate, the more unsatisfactory they will be. At the North again, we are met by the difficulty that nearly all the Monthly Roses are too tender to stand our winters, where the thermometer reaches zero.

An old German florist relating his tribulations on this subject to me a few years ago, said: "I have so much trouble with the ladies when they come to buy mine Rose, they all wants him hardy, they wants him dooble, they wants him nice gooler, they wants him nice shape, they wants him fragrant, they wants him moondly, they wants him everydings in one rose, now I have to say to dem ladies, though not what you call an ungallant man, I says, that I sees not that lady that is rich, that is young, that is good demper, that is beautiful, that is healdy, that is smart, that is everydings in one lady, I sees her not much."

This was true of the roses when my old German friend told of his troubles, but since then we have been fortunate enough in geting a new class of roses known as the

HYBRID TEAS.

all of which, by covering with four inches of leaves, put on in December around the roots prove perfectly hardy in most of the Northern States. These now compose many fine kinds, among which are: Dinsmore, bright scarlet crimson, splendid form; Ball of Snow, pure snow white, fragrant; La France, deep pink shading to light rose, splendid; American Beauty, rich, light crimson, grand form, large size, and exceeding all other roses in its delightful odor; Lady Mary Fitzwilliam, rosy blush, globular, large; Pierre Guillot. These are all "monthly," all "fragrant," all "double" and of fine "form," and are all particularly rich in color. In fact, they are all what the good old German's customers wanted, they are "everydings" in one rose, and besides are all "moondly," "nice gooler," "fragrant and ever-blooming."

MONTHLY OR TEA ROSES.

Although the class best adapted for the section of the country where the thermometer never falls below twenty degrees above zero, is yet extensively grown in the summer season in all the Northern States, for the reason that we have in it not only a distinct and delicious tea fragrance, but a far greater range of color than is found in either the hardy Hybrid Tea, or Hybrid Perpetual class, for in these the colors only range through shades of white to crimson, while in the Tea or Monthly Class we have all shades of yellow, copper color, and orange, besides all the colors embraced in the hardy sorts. Moreover, the Tea class of roses gives greater profusion of bloom, and is easily propagated, consequently the plants are now sold so cheap that many plant beds of them for their value for summer flowers only.

HYBRID PERPETUAL ROSES.

This name is certainly misleading when the plants are grown in our hot and dry summers, for they really give only one good bloom in June with us, though in the cool and moist climate of Great Britain, many of the kinds bloom nearly the entire season. Individually this is by far the finest class of roses. The flowers are of the largest size, and nearly all have the delicious odor peculiar to the old Moss and Damask Roses. The size of many of them is immense, often five to six inches in diameter, all are hardy, requiring no care after planting; but, as has been said, the most of them bloom only once, and hence are not so satisfactory in this respect for our climate as the everblooming sorts.

SOIL AND CULTURE OF ROSES IN THE GARDEN.

Like nearly all other plants, roses delight in a deep, rich, well drained land. When a bed of Hybrid Perpetual Roses is to be planted, the soil should be dug to the depth of at least one foot, and well mixed with a coating of two or three inches of rotten cow manure. In the absence of that, sow bone dust on the surface just enough to cover it, and mix to the depth of a foot with the soil. If Hybrid Perpetual Roses are to be set out in a permanent bed, plant from eighteen to twenty inches each way; if Hybrid Teas plant fourteen to sixteen inches, and if Monthlies or Teas about twelve inches. The Hybrid Perpetual and Tea Roses require to be pruned, like any other hardy shrub. Cut the young wood any time after the leaves have dropped, back to two or five eyes, regulating it according to the strength of the shoot, the weaker shoots being cut to two or three eyes, the stronger to four or five, shaping the bush so as to get it in good form. The Monthly or Tea Roses require but little pruning, except to thin out the "blind" or old wood, or topping by pinching out the center of any shoot that is growing too luxuriantly, so as to keep the plant in good shape.

Lilies.—How to Grow Them.

JULIUS J. HEINRICH, N. Y.

Most species of lilies succeed under ordinary garden culture, yet they will well repay a little extra attention. One should not pet and nurse them for the first six months or a year after they have been planted, and then leave them to care for themselves, complaining because they do not grow larger and faster. They need steady and continued care. What might do well with one species, may prove fatal with others, which require a different soil or climate. Many bulbs will grow anywhere, as freely as potatoes; but it is best to be on the safe side and give all varieties good care.

As a rule, the bulbs should be planted five or six inches deep, in mellow, well pulverized, rich soil. The drainage should be such that all surface water will run off easily. Nothing will injure bulbs more than stagnant water around them. They should always have good bottom drainage. The soil should be kept clear of weeds, and well worked. It is not advisable to transplant the bulbs oftener than once in four years, for unless their new quarters are much superior to the old, they will do far better if left undisturbed. Bulbs should not be planted on freshly manured soil. Old, well pulverized manure is desirable to mix with the soil in small quantities when planting, or for the top-dressing in after years. Mulching in hot weather is desirable, and all flowers should be cut off as soon as they fade, as they will exhaust the plant by forming seed. Stable manure should be used, with leaves or other coarse litter, for covering the bed in winter.

GROWING LILIES IN FRAMES.—If the choice varieties are to be cultivated to any great extent, the frame method is very desirable, especially if mice or moles disturb the bulbs. Frames can be constructed of any length and breadth desired, and of the roughest and cheapest boards. The frame should extend twelve to eighteen inches below the surface of the ground, and six to twelve inches above. This depth will obstruct the subterranean passage of mice and moles, and to a great extent will keep out the roots of trees, shrubs, etc. Dig out the soil to the depth of two feet, and fill in with sandy loam, mixed with a small quantity of well-rotted stable or barnyard manure. Light board shutters should be provided and kept on all winter, and during storms in the autumn or early spring. This protection will be of great benefit to some kinds, which are sensitive to excessive wet during the winter season.

INSECTS.—Above ground lilies are seldom attacked by insects, except under glass. The bulbs, however, sometimes suffer from the attacks of worms, which eat them, making a cavity, which in wet soils fills with water and causes them to decay. As manure attracts worms, it should not be used to mix with the soil, unless it is old and well pulverized, and then not in great a quantity. The Green-fly or Aphis often attacks lilies under glass, but this is easily exterminated by the use of Fir-tree Oil.

WHEN TO PLANT LILIES.—A great deal of failure is due to planting bulbs at improper seasons. The time recommended as being the best is the months of October, November, March and April. Many fail from planting late in the spring after the weather has become hot and dry, which causes the bulbs to decay before they can form roots and and commence growth. Of course, where the climate will permit, bulbs can be planted at any time during the winter, but if it can be done in the autumn, it would no doubt be better. Bulbs should always be planted as soon as received, or packed in soil until planting time. Nothing injures them more than exposure to the air, or to lie around dry.

HOW TO KEEP AND COLLECT BULBS.—Lily bulbs should not be kept out of the soil for any length of time. If you have them on hand, and are not ready to plant them, they should be kept in pots or boxes of soil slightly moist, or what is better, if it can be had, well pulverized leaf mould from the woods. They should be kept in a cool cellar or pit. Care should be taken that the soil is not too wet, for if so, it will encourage the bulbs to commence to grow. In this way bulbs can be kept all winter, if necessary, in excellent condition.

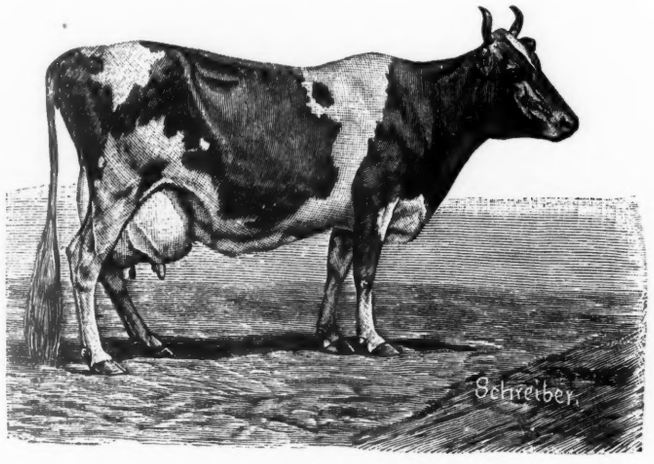
The fact that wild lilies are not easily found, except while in bloom, makes it quite necessary that they should be collected at that time. This can be done without greatly injuring them, if the bulbs are carefully lifted, and the stems cut off close to the bulb, which should be at once buried, or planted in good soil, if wanted for shipping, or for permanent planting in autumn.

FORCING LILIES.—The only lilies which can be recommended for early forcing, are *L. candidum*, *L. longiflorum*, and its varieties, the most valuable of which is *L. longiflorum Harrisii*. To force them, work should be commenced in September by potting strong healthy bulbs in six inch pots of rich soil. The pots should be plunged in the ground, and covered with a few inches of soil, to prevent drying out and freezing. In November or December they should be brought in and placed in a warm, sunny situation, where they will at once commence growth, and will flower in February or March. Water should be given freely while growing, and it will be a good plan to syringe them every day. In a well kept greenhouse, lilies treated in this manner will be quite sure to succeed. We have often known them to do well in a window garden, but if they are obliged to grow in a dry and dusty atmosphere, little success can be expected; all kinds of lilies can be potted in the manner above described, and brought into the greenhouse in February, where they will bloom in May, or perhaps some sorts will flower earlier.

BLIGHT ON LILIES.—Some complain that many of their lilies drop their leaves and die down just at the time when they are about to come into bud. This has never been observed among the common kinds, like the *Speciosum*, *Tigrinum*, *Umbellatum*, *Longiflorum*, etc., and it occurs chiefly among the Californian and some foreign species. It appears the first year. If they are planted at a proper depth, and in a partly sheltered situations where the full rays of the hot sun will not strike them all day, they will not likely be attacked by blight after the first year, and never after the bulb has become established and healthy. When the disease is observed, they can usually be saved by shading and dusting them a few times with flowers of sulphur.

Guernsey Cattle for the Dairy.

The islands of Guernsey and Jersey lie very near each other, yet there is a quite perceptible difference between the climates of the two. This is caused by the respective conformations of the islands. The highest land in Jersey is at its northern end, from which it slopes gradually to the south, while Guernsey presents an aspect directly the reverse, having a general northern slope. The climate of



GUERNSEY COW, IMPORTED WINDFALL, 2216.

Jersey is consequently softer and milder than that of its sister island, with a higher average temperature. This climatic diversity has doubtless had some influence upon the respective races of cattle, which are peculiar to the islands, though their different characteristics are mainly the result of breeding and selection. The Guernseys are larger and heavier than the Jerseys, and have a greater tendency to put on flesh when they cease giving milk. The Jerseys are the finer race, the Guernseys less finely built, and somewhat more hardy. The latter have no butter record to compare with the phenomenal performances of the Jerseys, yet they have proved very valuable as dairy cows. Their flow of milk is abundant and long-continued, and the milk is very rich in butter fats. When crossed upon the Shorthorns or common "native" cows, the crosses and grades of Guernsey have been very successful as dairy cows. Hon. Lewis F. Allen, of Buffalo, N. Y., after having long been the historian and recorder of the Shorthorns, showed his faith in the Guernseys a few years ago, by establishing on his Grand Island farm, a dairy herd of cross-bred Guernsey and Shorthorn. The trial has proved eminently successful and satisfactory. There are so many points of affinity between the two races, that the cross is a very natural one. Encouraged by Mr. Allen's success, others have bred the Guernsey-Shorthorn cross, and in every case that has so far been made public, it has proved satisfactory. The cows for such a cross should be chosen from a milking strain of Shorthorns, rather than from a tribe especially distinguished for beef.

The illustrations herewith are portraits of typical Guernsey cattle. The bull, Fancy's Lad, 651, was bred on the Fernwood Farm of L. W. Ledyard, Cazenovia, N. Y. which furnished the foundation stock of Mr. Allen's herd. He was calved July 9, 1883, and is a fine orange fawn and white. His sire was imported Fernwood Chief. Fancy's Lad, with four of his female progeny, took the herd prize of his class at the recent dairy show in Madison Square Garden. He is owned by Charles B. Wood, Norwood, New Jersey.

The imported Guernsey cow, Windfall, 2216, is now something over ten years old, has long been noted as a deep milker, and possesses in a wonderful degree the desirable points of her race. Her straight flat face, waxy horns, fine neck, broad hips, copious milk veins, deep capacious udder, and mellow orange-colored skin, all mark her as an animal of rare excellence. She is owned by J. W. Fuller, of Catasaqua, Pennsylvania, who also possesses several of her daughters.

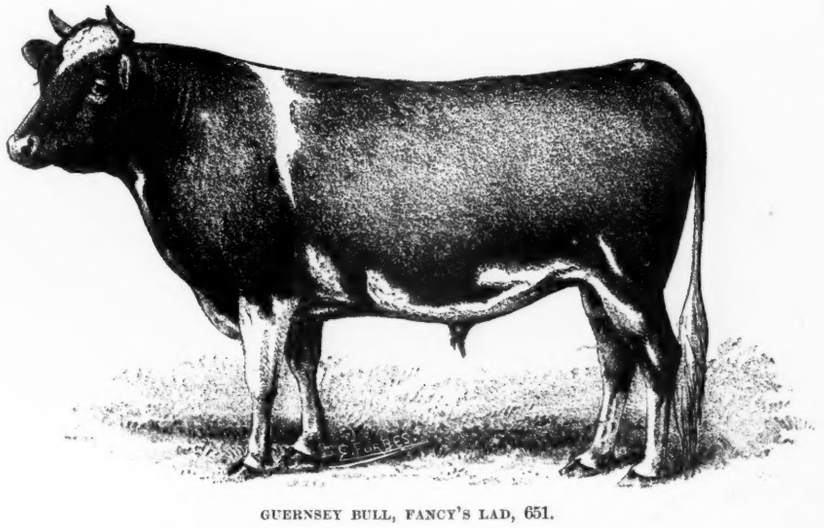
Soiling and Soiling Crops.

HENRY STEWART.

The crops that have been found most suitable for soiling, are rye, sown in the fall, orchard grass, clover, oats or barley and peas mixed, field corn, sweet corn, millet, alfalfa (or lucerne), and hay and roots for winter feeding. These crops are grown in succession; that is, rye sown early in the fall makes the first feeding, either for early spring pasturing, or cutting as soon as it shows the heads; this is followed by orchard grass which is a permanent crop, and may be pastured or mown as soon as the rye is exhausted. As the rye is cut off in strips across the field, the land stripped is at once manured, plowed and planted with early sweet corn—Narragansett being preferred, because it is nearly as early as the earliest, and is larger in growth, and in every way excellent. As soon as another strip is cleared of rye, that is treated in the same way, until the whole of the rye ground is planted. Clover comes into use with or after the orchard grass. These crops, as a rule, should be cut and not pastured, as there is an economy of fully twenty-five per cent. in cutting over pasturing. The clover lasts until the first early corn is ready, early in July, and thereafter there will be abundance of fodder from the corn all the summer. As the ground is cleared of corn, it is manured and plowed, and replanted with evergreen sweet corn, or with early Canada field corn, or some good variety of flint corn. Our own preference, after several years experience, is for evergreen sweet corn, which is more palatable and nutritious than field corn. Some of the ground is sown at the earliest opportunity in the spring with oats or barley and peas mixed, two and one-half bushels of the former with one and one-half of the latter per acre. This crop comes in early in July, when the clover is exhausted, or is ready for cutting for hay. Mangels or sugar beets are planted late in May or early in June, and are reserved for winter feeding, the tops of these roots being the last green food of the season. The surplus of all these crops is used for winter feeding, or a separate provision for the purpose is made of fodder corn, grass, millet, and other crops.

For the purpose of procuring a large quantity of butter in the milk, which is advisable in every branch of the dairy business, and for the family supply as well, where but one cow is kept, some of the concentrated foods are purchased. A proper selection of these foods will be made in reference to their cost and feeding value, for the market values are very often less and sometimes more than the feeding value, and judgment is exercised as economy and experience may dictate in the choice of these foods. As a rule, bran and corn meal are the best staple foods. Pea meal, cotton-seed meal, malt spouts, brewers' grain—when they can be kept sweet—and other similar foods may be used when circumstances are favorable.

The management of a dairy herd under the soiling system is a matter of considerable importance, for the cost and effective results depend upon it to a large extent. Our own method has been as follows, and has been found economical and satisfactory in every respect. The first crop in the spring is fall-sown rye. When this is in head, cutting begins. A one-horse mower is taken to the field, and two days' supply is cut. The mower is left in the field, covered with a waterproof sheet for protection. A cart or light wagon for the one horse, is taken to the field, and the supply for two days is drawn to the barn. One day's supply is always kept ahead in the barn, and one is left in the field as a precaution against bad weather. This is cut at night the first day, and afterwards each day's cutting is left in the field, put up in cocks and covered with a large hay cap, and when it is brought into the barn, another cutting is made and left ready. The second day's feeding is thrown into a heap on the barn floor; it will heat a little, but this is beneficial rather than otherwise.



GUERNSEY BULL, FANCY'S LAD, 651.

The fodder is cut in a fodder cutter; for a large herd, the horse or the bull may do the cutting, a tread-power being kept in an annex to the barn, with a shaft or belt passing through to the fodder cutter in the stable. A large feed box receives the cut fodder. This is wetted, the water being pro-

cured from a pump connected with a cistern or well, or spring, as the case may be; but a cistern is preferable and most economical, being supplied from the barn roof. The grain food is mixed with the wet fodder. This is kept on the floor above, and is let down by a spout over the feed box, which is closed by a draw slide. The food is well mixed with a five-tined fork, so as to distribute the meal, etc., evenly. A large grain scoop will hold enough for a ration for a cow. The food may be carried to the feed troughs close by in the scoop, or in a bushel basket; one heaped bushel being the usual ration for one meal.

When a strip a few rods wide is cut off, the land is at once plowed with a swivel plow, the furrows being all turned one way. To avoid heaping up the soil near the fence, an open furrow is first plowed a few feet from it, and then closed, leaving the surface level; the land is then plowed close to the fence—if there is one there—and then the other land is turned, leaving no open furrow or back furrow; as it is required all over the ground. Narragansett sweet corn is then planted in rows twenty-seven to thirty inches apart, the seed being dropped about twelve inches apart, and three to five grains in a hill. The land is kept well cultivated to keep it free from weeds, and to help the crop. A boy of eighteen is able to do all this work for a herd of thirty cows, the expense being no more than his wages. The other farm work is done by the ordinary help; the boy's work being to cut the fodder, feed the cows, and, with needed help, to replant the crops at intervals of about a week or less; some plowing may be done every day. Thus the work goes on all summer.

In the winter the fodder is cut in the upper part of the stable, and the cut feed is dropped down a large shute into the feeding box under it, on the floor below. The large, roomy stable gives ample storage for hay and fodder above, and, as it is connected with the barn and other buildings, the fodder is easily brought to the stable, when a fresh supply is wanted. The roots are kept in a cellar, under or connected with the barn, and for twenty or thirty head, or less, it is no difficult matter to slice a sufficient quantity every day in the feed box with a spade ground sharp on the edge. Half a bushel daily is the regular ration, given at noon. The cut roots are sprinkled with the usual meal, and some salt. All the stock are fed in the same manner; the bull and the young heifers having their proportionate rations. The bull gets the same as a cow, being kept in good condition at all times, as in a dairy kept for full profit, and especially for fine butter, the winter should be the most productive season. The slack time in dairies kept for the supply of fine butter for sale to private families in large cities, is always in midsummer, when customers are usually in the country, and away from home. This gives a favorable opportunity for attending to the crops, and gives a rest from butter-making at the most troublesome season of the year.

Combating Drouth.

The accompanying engraving was made from a sketch received from Mr. F. Osius, Comanche

GARDEN IRRIGATION.

county, Kansas, who writes us: For those who live in States where drouths are of frequent occurrence, it may be of interest to know how all kinds of vegetables may be raised, notwithstanding the lack of rain. When the dry season commences, all the available old vegetable and fruit cans are gathered, and after the tops and bottoms have been unsoldered, place between the rows of plants, as seen in the illustration. Then I provide a number of barrels, which are to be pumped full of water every morning. In the evening the cans are filled with water from the barrels. If the barrels can be raised somewhat, a rubber hose may be used to advantage, otherwise an ordinary watering can has to be used. I raise tomatoes, cucumbers, melons, and even small trees in this manner. By putting a handful of unleached wood ashes in each can, astonishing results will be obtained. Where drain tiles can be obtained cheaply, they may be made to serve the same purpose as the tin cans.

Ladder for Picking Fruit.

The illustration herewith shows a form of ladder designed especially for orchard use, but it may be

CONVENIENT FRUIT LADDER.

made useful for general purposes on the farm. The center stick is of ash, or any light, tough wood, not less than six inches in diameter at the base. Holes an inch and a quarter in diameter are bored at intervals of twelve or fifteen inches, to receive the rungs. These are preferably of hickory, or good white oak, one-half the length of each being reduced to a size which admits of driving it through the center bar. The rungs at the base are two feet long, and those at the top one foot, the intermediate ones decreasing regularly in length. Two side-bars, each six feet long, are attached at the base, as shown in the engraving. These add to the strength of the ladder, and cause it to stand more firmly on the ground.

Washing and Marking Grain Bags.

ELDER'S WIFE.

Don't let the grain bags waste the grain, through big and little holes and by poor tie strings breaking. If the price is low, all the more need of saving it all. Put the bags, a few at a time, in a boiler with soft water enough to cover them, to which has been added soft soap and a little salsoda; let them boil for half an hour, then rub any extra dirty spots, rinse well and hang to dry wrong side out. If any of them are too far gone to pay for mending, some of the best parts can be used to mend others, using No. 8 thread. Put the patch on the inside, fell the edge neatly, turn in the edge of the hole, and hem that down. For strings take three strands of carpet warp, four threads to the strand, braid a piece half a yard long, tie a knot in each end, and sew it firmly by the middle to the bag.

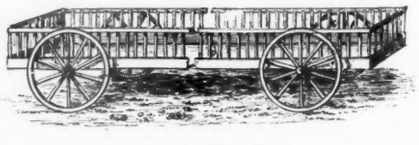
For marking the bags, a very cheap and available stamp can be made of letters cut from the leg of an old rubber boot and glued to a piece of wood of suitable size. To make the letters, the old boot-leg is split open, laid out flat and chalked so as to show pencil-marks. Then the letters are marked out and cut with a chisel or sharp knife. The smooth side of the letters is glued to the wood, leaving the felt side out. In using the stamp, black paint is spread evenly over a piece of glass, the stamp is pressed lightly upon it and then very firmly on the bag or other article to be marked.

Portable Feed Rack.

The appliance shown in the accompanying illustration is made by utilizing the wheels and axles of an old wagon. The rack may be of any convenient length—even thirty feet. When of this length, couple the axles twenty feet apart. The rack can project three to four feet beyond the front axle and six or seven feet beyond the rear. Two scantlings of the length of the rack, or else shorter pieces spliced, are needed. These may be put on top of the bolsters, and when the rack is brought into the feed lot, the wheels are driven into ruts in the ground, to bring the rack down to within reach of the animals. Or the scantlings may be below the axles, an iron rod passing through the axles and scantling, and perhaps through a block between them, and secured by a nut. This plan is the better when the land is smooth and even, as it is not necessary to lower the wheels for the animals to get the feed; but when the land is uneven or stumpy, the rack is best made altogether above the wheels, that it may pass over obstructions. The bottom of it should be of boards, closely fitted; and the sides should be made of a board six inches wide, at the bottom, with slats above. It is best to make it of a hight that will permit the animals to eat from the top—as they would from a manger, not from the X rack; then there is much less waste. But it may be necessary to have small animals eat from the side, hence slats are used in the sides; and these make the rack lighter than it would be with solid sides. The hight of the rack should be suited to the animals that will eat most from it. Thus, if sheep only are to be fed from it, it will be made lower than when it is designed for cattle. It should be borne in mind by those having both sheep and cattle to feed, however, that the rack can be lowered by sinking the wheels in the ground, the food being brought within reach of short necked animals by using a false bottom. While the rack is designed for stover, grain may be fed in it, as it has a tight bottom and a tight side for six inches up. Or for sheep and horses the grain trough may be fixed on the outside, near the bottom; the board forming part of the side of the rack, also forming one side of the grain trough.

The man who makes one of these racks will soon wonder how he ever got along without it. While it is convenient when stover of any kind is to be fed, it is most labor and time saving when the animals are to be given green fodder, as the pastures burn up or get short. The corn, or whatever the fodder may be, is cut and thrown into the rack, which is then driven to the feed lot. The labor of lifting the stover from a wagon to mangers or racks, which also causes waste, is avoided. It is likewise a feed saving arrangement. If the stover is fed on the ground, a large part, and the best part is wasted. If fed from X racks, or from stationary racks, as usually constructed, there is yet a waste of the leaves—the very best part.

DISPOSING OF THE APPLE CROP.—The apple crop promises to be a fairly abundant one. In times of plenty, good fruit will always sell, and in such seasons, care in selecting and packing are especially important. In seasons of abundance, inferior fruit will not pay the cost of barrels and freight.



MOVABLE FEED RACK.

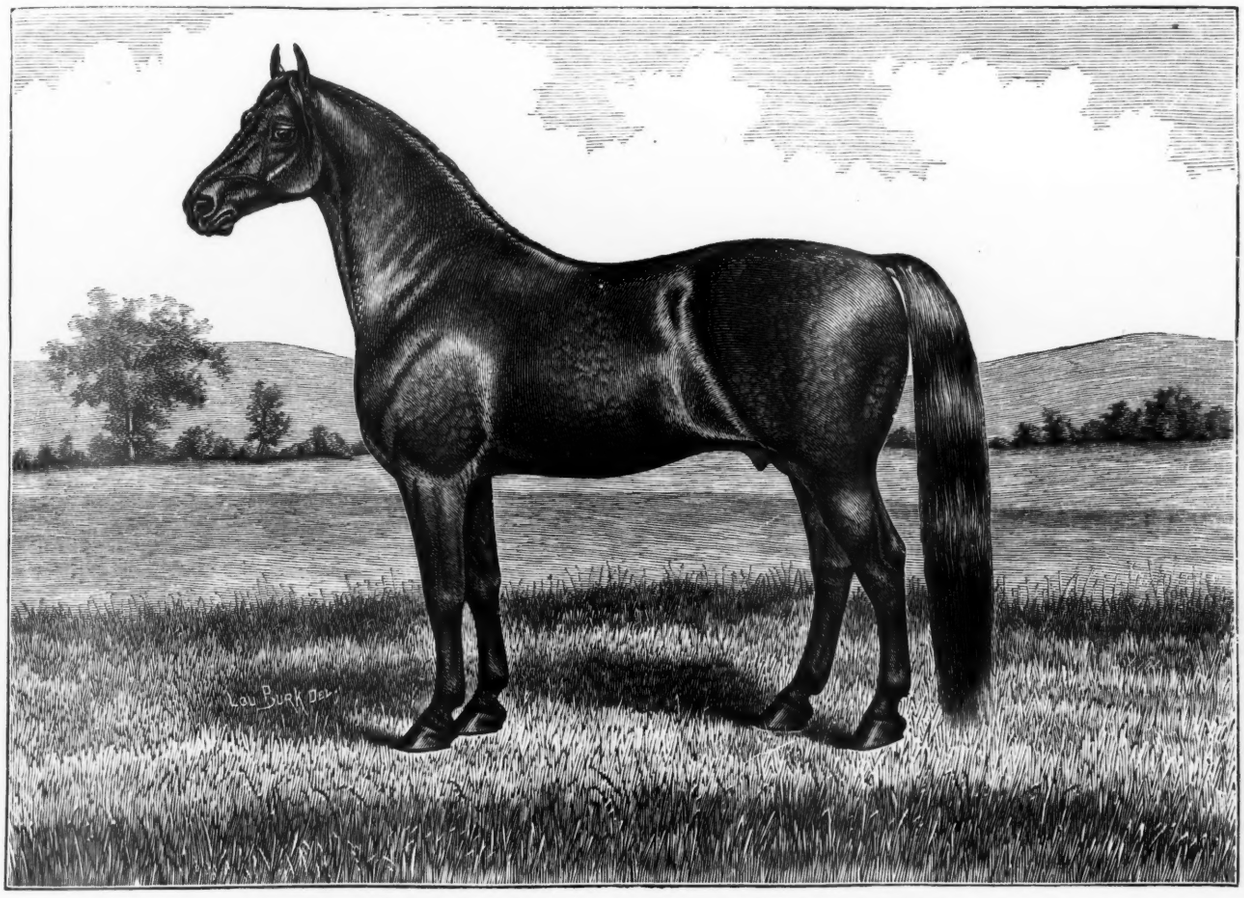
Much fruit will be left at home, that in seasons of less abundance would be shipped as second quality, and provision must be made for disposing of it. A portion of it can be dried or "evaporated," but this will dispose of but a small share. The most profitable way of disposing of the surplus is to make it into vinegar, if one has the barrels or casks in which to store it. Of course, more or less apples can be fed out to pigs and other animals.

Cleveland Bay Horses.

Concerning the origin of the Cleveland Bays there exists but little positive information. During the last century they were bred and highly valued in northern counties of England. The vale of Cleveland, in the North Riding of Yorkshire, was peculiarly their home, where they were brought to the highest perfection. This fact and their uniform bay color gave them their name. Early in the present century, when railroads had superseded the mail coaches, and the rapid development of the mining industries in England called for heavy draft horses, the Cleveland Bays were less sought for than formerly. But they never became extinct. Within recent years a renewed interest in these horses has been manifested. The Cleveland Bay Horse Society, which was organized in England in 1884 has already issued three volumes of its studbook. The breed was introduced into the United States about twelve years ago, and is held in high favor wherever it is known.

The Cleveland Bay is in size a medium between the thoroughbred and the heavy draft horse. He stands from sixteen to sixteen and a half hands high, weighs from 1,350 to 1,450 pounds, has sloping shoulders, strong loins, fine, level quarters, a handsome, well-carried tail, a well-set, bony head, and clean limbs with fine flat bones. The color is uniformly a deep, rich bay, with black legs, mane and tail. The action of a well-bred Cleveland Bay is at once graceful and majestic, denoting activity and strength. The Cleveland Bays supply the want of strong, showy carriage and coach horses. They are also admirably adapted to farm work, as general purpose horses. But it is for the purpose of crossing on our native stock that this breed of horses is peculiarly valuable. The grades possess in a large degree the weight, color, fine action, and general good qualities of the pure-bred sire.

The accompanying illustration is a portrait of the Cleveland Bay stallion Competitor, imported by Geo. E. Brown & Co., and sold by them to his present owner. It is a very good typical specimen of the form and general style of the breed.



CLEVELAND BAY STALLION COMPETITOR.

Room and Ventilation for Stables.

In this land of universal freedom, and of magnificent distances, where Nature is lavish of her gifts, and where overcrowding is solely due to the perversity of man, why is it, and how is it, that our domestic animals are pinched for room, and are frequently so poorly provided for? These questions suggest themselves, from the circumstances attendant on the death, which recently occurred, of the American-bred race horse, Ten Broeck. This truly great horse was entirely gentle and easy of approach, still he met his death by accident; he reared high in his stable, struck his head a violent blow, which resulted in paralysis, and ended in death. Verdict, not space enough.

The requisites of a stable are manifold. Health and comfort must be secured, if rest is to be had for its inmates, and no domestic animal can thrive without a restful feeling. The city stable too frequently is a torture chamber, full of pestilential, narrow cells; the average country stable is a barn, where the farm animals contend for shelter with farm implements, and where poultry not unfrequently resort. These extremes of misery are modified, and comfortable stabling can be found; also are there some veritable palaces for favorite studs. With such we tamper not. A good horse is worthy of the best that man can bestow upon him.

When a horse gets back to his stable, after his day's work is over, he requires, to keep him in health and full efficiency, a home feeling that comes of absolute rest. To secure this, he must have a dry, clean bed, in a roomy box, which must be well ventilated, and free from the annoyance of insects. The box must be cool in summer, and warm, but not hot, in winter. The farmer of moderate means feels that to erect new stabling is out of his power. What then? Why look about and see if by storing things more closely, and with more attention to tidiness, the horses cannot have more space, be more apart, and thus enjoy better rest. If a new stable can be built, much has to be considered before beginning the work — cost, though a serious question, is not the most important. Location and ventilation, with perfect drainage and no crowding, are the requisites; design and interior subdivision follow, as matters of course. It is most desirable that a stable stand alone; in case of fire less loss will occur; it is more healthful, as ventilation will be more complete. All stables should face as near due south as possible; stable doors should be wide and lofty, and should slide on iron ways, and should, when closed, lap over fully two inches, to avoid draughts of cold air, as also the necessity for fastenings which are continually in the way, and are always getting out of order. Brick walls are good; but as bricks retain heat, a stable thus built must have a veranda all around, to insure coolness and dryness. The same veranda need frighten no one, as its friendly shade will give much solace and comfort, and can, when required, be utilized, to save from the weather implements and wagons. The roof of every stable should be high pitched, and have frequent ventilating spaces. If shingles are used, then, on the ridge, raise a shingle an inch or so above its fellows. A very small air space carries off heated air coming from below. If slate is the material, one tile above its neighbors will suffice to cause ventilation. The inside walls of boxes should be lumber lined, with a space between the outer wall and the lining; this sort of wainscoat should be at least five feet high; the partitions and half-door the same height; the upper doors and the upper portions of the partition of iron. Fancy iron work and patent mangers, as well as hay racks, are to be religiously avoided. A galvanized iron bucket is easily kept clean, and

far surpasses any manger. The horse, in a wild state, feeds from the ground, therefore he will do better to eat his hay from the floor of his box. By the way, the stable floor is most important. If subdrainage is needed, it must be thoroughly effected, the soil must be dug out to below frost, the drains put in, and the excavation filled in with rough stone, covered on the top with a thick bed of sand; the floor then can be laid. Bricks set on end are cheaper than tiles, and equally safe when properly laid. To secure a moderate temperature, it will be necessary to ceil the boxes, which must be done with judgment. If the stable is a square building, with a centre gangway, then an open space of considerable size should be left to answer as an air shaft. If the stable be one long row of boxes, then a sort of gallery could be built to project far over the boxes, but not to close ceil them. The lofts thus formed would make the best description of store for the winter supply of hay and straw, which could readily contain a month's rations of both. The horse, when seen at his best, is a dainty feeder; a nervous, irritable creature, painfully susceptible to outside influences, therefore the race-horse owner is the one who recognizes these individualities, and provides against them. Forethought and due attention to details lighten the burden, and make the servitude of the horse as little irksome as possible. They also serve to render him capable of better and more lengthened service. It is a great mistake to have the water supply actually within the stable walls. Water troughs ought to stand apart and be fully exposed to the rays of the sun, and should be so raised from the ground that neither small animals nor poultry could trouble the water.

Some Characteristics of the Cotton Plant.

PROF. J. S. NEWMAN, ALA.

There are but two species of cotton planted in the United States, viz.: the *Gossypium Barbadense* or Sea Island, and the *G. herbaceum*, or common Upland. The cultivation of the former is confined principally to the islands along the Atlantic coast, but is cultivated profitably as far in the interior as is influenced by the saline atmosphere from the ocean. Its cultivation has been extended some fifty miles into the interior within the last ten years.

The peculiarities of the Sea Island are the straggling habit of growth, delicate yellow flowers, small pointed bolls or pods, silky fineness and rich creamy color of the lint or fibre, and the complete separation of the lint from the seed in ginning. The leaf is also more deeply lobed than that of the *herbaceum* or Upland. Probably no other cultivated plant, except perhaps tobacco, is so readily and radically changed in its characteristics by soil and climatic influences as the cotton. This species planted continuously in the interior, gradually degenerates in the length and firmness of the lint, changes somewhat the habit of growth of the plant, and finally, if repeatedly planted without introduction of seed from the coast has tufts of lint adhering to the seed. These effects are probably somewhat the result of hybridization with the upland species, but they have been known to take place independent of this cause. The Sea Island is not so prolific as the Upland short staple, but is profitably grown in comparison with the latter, in consequence of the higher price it commands.

Many of the so-called long stapled upland varieties owe their distinctive peculiarities to attempts to improve the quality of the staple of upland varieties, by hybridizing with the Sea Island. The object sought was to lengthen the staple by using the Sea Island on the one hand, and secure productiveness from the Upland on the other. These efforts have generally resulted in an improvement in the lint, but such reduction in productiveness, as to destroy the advantage gained in the quality of lint. In some instances however, decided advantages have been gained. There are many varieties of the Upland which have very distinct characteristics, indicating that they have been thoroughly established. Besides those resulting from hybridizing with the Sea Island, others have been produced by selection, continuing from year to year to select seeds from stalks having the form, habits of growth, and productiveness desired. On the principle that like begets like, such careful selection soon establishes the type desired, and a new variety results. Plants are just as surely and readily improved by selection as animals, and the improvement resulting from judicious selection, requires the same watchfulness for its perpetuation and maintenance in plants that is demanded for animals. Similar requirements are necessary in each case. No intelligent breeder would attempt to improve his stock by selection, without abundant feeding and judicious attention. Neither need we expect any decided improvement in the type and productiveness of our plants without abundant food and thorough cultivation. Nearly all of our cultivated plants have been developed into their present advanced state of productiveness, through the influence of domestication and accompanying cultivation. The wild cow, or the domestic cow on the range, produces only enough milk to supply the necessities of the calf for a few months. The performances of Eurotas, Mary Ann, Princess Second, etc., are monuments to man's skill in feeding and breeding. Neglect these animals for a few generations, discontinue the selection of proper mates, and the natural tendency to revert to the normal condition will reassert itself.

The same is true of the cotton plant. In its wild state, it produces but little lint. By selection of seed with special reference to the maximum development of seed and lint, the extremely productive varieties now under cultivation have been produced just as the dairy and beef breeds of cattle were established by selection, with special reference to the development of their qualities. An early variety is established by selecting seed from the first ripe bolls upon the earliest stalk in the field. The reverse course would produce a late ripening variety. So any form of stalk may be established by continued and judicious selection from those most nearly approximating the form desired. The most desirable form of plant is that of a cone, having the diameter of the base equal to the vertical axis in length. This form gives strength for the support of a large quantity of fruit, and at the same time exposes all parts of the plant equally well to the rays of the sun, and is thus less subject to the attack of the boll worm, and less liable to rot. In five years, careful selection established a variety with this habit of growth, from a cluster variety which bore its fruit in a small area, clustered along the main stem of the plant.

Plants acquire habits which become as fixed as do those of animals. This is illustrated by the facility with which they adapt themselves to climate. Seed corn from New York, planted in Alabama, will ripen in July, while Alabama corn would not mature in Northern New York. The New York corn has adapted its period of growth to a short growing season, while the Alabama corn has availed itself of the longer season of growth, and has lengthened its stature and enlarged its ears of grain. Bring the New York corn to Alabama, plant from year to year the reproduction, and its stature will gradually increase, and its period of growth be prolonged until finally it would not ripen earlier than that already acclimated. The cotton plant originally belonged to the tropics, but has gradually been acclimated farther and farther North, until it now covers a large area of the temperate zone. There is a natural tendency to greater growth of weed in all plants, under the influence of warmth of climate and length of growing season. To this the cotton plant is no exception. We find in the Southern part of the cotton belt of the United States a tendency to greater production of weed in proportion to the fruit than in the Northern, while seed grown in the Northern part, will, when planted in the Southern portion, produce an earlier crop than those originated in that vicinity.

Cotton is an exogenous plant and true to the habits of its class, sends its tap root deeply into the soil. The seed is a rich store house of plant food, and starts off the young plant with great vigor, if the proper conditions for healthful germination are supplied. Still retaining a remnant of its tropical habits, the seeds require a high temperature for healthful germination and vegetation. Plants which vegetate under a mean temperatnre of seventy degrees, Fahr., grow off much more vigorously than those which struggle into birth at a mean of sixty degrees.

When the seed has swollen preparatory to germination, the cotyledons may be observed exquisitely folded in their downy covering. In a few days, these are unfolded into two broad fleshy looking leaves, with no visible sign of the means of prolonging the growth of the plant, but soon a bud protrudes from the common axil of these, and the first true leaf appears; the planter's third leaf, which warns him that "chopping" must soon relieve his "predestinated" plants of their less fortunate superfluous neighbors. Few planters have any conception of the underground development of the cotton plant. Their idea of the length of the root having been based upon observation of plants pulled from the soil, if asked how long the roots of a grown cotton plant are, would in a majority of cases, reply, "about two feet," while in fact, the roots are longer than that before the plant is three inches high. A plant three and one-quarter inches high was found to have a root three feet, four inches in length, while one two feet high, just commencing to blossom, had roots six feet in length.

Variegated Shrubs.

Many shrubs, with variegated and colored leaves, are very beautiful in their early spring foliage, but when the summer heat comes on, the variegation usually is lost, and the shrubs present only green leaves, and in colored leaved kinds, of a dull, muddy green, less pleasing than in the normal form of the plant. There are two shrubs, however, that have proved thoroughly satisfactory in all seasons. One of these is the "Purple-leaved Barberry," a form of the common Barberry (*Berberis vulgaris*), the leaves of which are of a rich maroon-purple color, and remain so. The flowers of this are very pretty, being of a darker yellow than in the ordinary kind, with the calyx purple, and the petals tipped here and there with the same color. Another of our favorities is the Variegated Rose of Sharon, (*Hibiscus Syriacus*). There are several forms of this with variegated leaves, but the one referred to originated with, or at least was sent out by, the late Robert Buist. The leaves are broadly and distinctly margined with creamy white, which remains in perfection until the end of the season. This attempts to flower, but makes a complete failure of it. The flowers are excessively double, open about half way, and dry up. It would improve the appearance of the shrub to remove the flower-buds as soon as they appear. This shrub is readily propagated by cuttings, and is altogether the most satisfactory of any with variegated foliage, that we have tried. The variegated Box-Elder, or Ash-leaved Maple (*Negundo aceroides*), sometimes so beautiful, is an utter failure with us. Variegated shrubs, generally, succeed better in a rather poor soil than in a rich one.

GOOD TEMPERED PONIES.—An extensive breeder of ponies, in England, says that for years past all his stock have invariably proved of good temper, which is essentially necessary in them, as they are chiefly used by ladies and children. To bring about this desirable object, he has been careful to use such stallions only as possessed a kind, gentle temper. Breeders of all kinds of domestic animals are frequently not sufficiently particular to see that those which are chosen to perpetuate their kind, possess a good temper, not only among the males, but also among the females; although in the former it is much the most essential, as being the annual sire of many colts, while she is the dam of only one. Vicious stallions and bulls are greatly to be deprecated, as they often turn upon and attack their keepers, badly wounding or killing them. In no instance should such be used in the stud or herd.

A Rural Cottage Costing $3000.

D. W. KING, ARCHITECT.

The general arrangement of the farm house, or suburban cottage, represented in our engravings, commends itself at once for its convenience and economy. A perspective view of it is given at figure 1. There is a cellar under the entire building, seven feet deep, and with a four inch cement floor. The outside cellar steps are of flag-stone laid on brick risers; the stairs from the kitchen are of plank, and are provided with ordinary batten doors. The first story, the plan of which is seen in figure 2, is ten feet high in the clear, and comprises the hall, parlor, dining-room, kitchen, pantry, and closets. The large chimney in the center of the house furnishes a fire-place for each room. On the second floor are four chambers, a bathroom, and closets, as seen in figure 3. The hight of the story is nine feet in the clear. The attic is seven feet high, and contains two rooms with closets. The foundation walls are of field stone, hammer dressed, well banded and laid to a line, both sides, with best cement mortar. The walls below the grade line are dressed with cement, and, where exposed to view, neatly pointed with red mortar.

Fig. 1.—PERSPECTIVE VIEW OF RURAL COTTAGE.

The chimney is of hard burnt brick, laid in lime and cement mortar to the roof, and in pure cement above the roof. Where exposed to view, the mortar is stained red. The range-opening in the kitchen, is built of pressed brick, and with a rubbed bluestone lintel, set in the usual way. The hearth is of rubble slate. The fire-places in the hall, parlor, and dining-room, are faced with pressed brick; have glazed tile heaters, and basket grates. The fire-places are lined with fir brick. The frame-work is of sound spruce, of the following sizes:

Sills, 4 by 8 inches.								
First floor beams	2	by	10	inch,	16	inches	from	centers.
Second floor beams	2	"	10	"	16	"	"	"
Attic	2	"	8	"	16	"	"	"
Studding	3	"	4	"	16	"	"	"
Rafters	2	"	6	"	16	"	"	"
Plates	4	"	4	"				
Corner Posts	4	"	4	"				
Ledger Boards	1	"	6	"				
Veranda Sills	4	"	8	"				
" Fir beams	2	"	8	"	16 inches from centers.			
" Posts	6	"	6	"	white pine, turned.			

The side walls and roof are sheathed with dry,

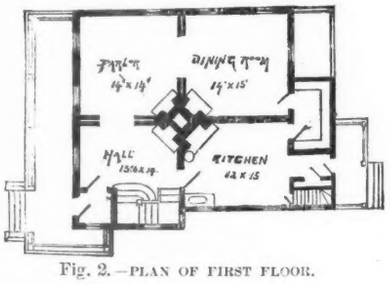


Fig. 2.—PLAN OF FIRST FLOOR.

sound spruce, tongued and grooved, and covered with three-ply, rosin-sized sheathing paper, and clapboarded with six-inch bevel white-pine clapboards. The second story is shingled with eighteen-inch xxx white pine shingles, laid five inches to the weather, with bands of octagonal butts. The roof is shingled in the same manner, laid five and a half inches to the weather. The shingles on the sides of the building are stained with burnt sienna and Venetian red. The roof is painted Venetian red; the side walls of the lower story, and all cornices and trimmings are painted brown. All inside finish, except the mantels, stairs, bath-tub and closet seat, to be of white pine or whitewood, painted two coats. The stairs to have yellow pine treads and risers, and neat ash newels and balusters, mantels of ash stained to match the color of the other woodwork. The outside doors to be of white pine, two inches thick; all other doors one and one-half inch thick, and finished in neat and complete style. The whole building to be left in complete order, ready for occupancy.

Evaporated vs. Dried Fruit.

The term "evaporated" has become well established in the markets, for fruit prepared by artificial heat, as distinguished from that dried in the primitive way of exposure to the sun. Evaporated fruit being dried rapidly, has not time to become changed and partly soured, and being dried in the dark, remains beautifully white, instead of turning brown like that exposed to the sun; besides these are the important advantages of freedom from dust, and the soiling by insects, birds, etc. The evaporated fruit presents such a superior appearance, there is no wonder that it brings a much higher price in the market or stores than ordinary dried fruit. This is a matter of so much importance, that one who has any considerable quantity of fruit to preserve by drying, cannot afford to go on in the old-fashioned way. There are several driers or evaporators now offered at a moderate price, which turn out as good products as the expensive machines first introduced. The difference in the price between the superior and inferior article, will readily pay for a good drier in one season. With artificial heat one is not liable to loss in stormy weather, which stops the drying in the sun, and it is often very difficult to keep the partly dried fruit from spoiling. Indeed, the advantages of drying by artificial heat are so many and so obvious, that we advise all interested to look into the merits of the several driers now offered with a view to purchase. Not only is artificial heat superior for drying fruit, but vegetables, especially sweet corn, are much better in flavor and appearance than when dried in the old way.

Making Hay as Nutritious as Grass.

To make hay so as to retain all the good qualities and nutriment of the grass, the grass, or clover, or any other fodder crop, must be cut when it is in its first stage of blossoming. It then contains the most of the valuable nutritious elements, and the least of the indigestible matter. And to preserve these nutritious elements from loss, the grass must be cured in the shade, without exposure to the sun's light and heat, and dried by some heating process. In England the very best of hay is made by drying the newly cut grass by artificial heat, in a machine constructed for the purpose. The grass or clover is cut and dried at once, and retains its bright green color, its fragrant odor—given out by the essential oils contained in the grass, and which are absorbed directly into the cows' system, pass into the milk, and go into the cream and butter—and its contents of starch, gum, and sugar. With our favorable climate, we do not need this drying apparatus; we can gain the same ends without it. We cut the young grass, or clover, and leaving it on the ground a few hours only, to get rid of the outer moisture, and wilt it thoroughly; then put it up in heaps, or cocks, and cover it with hay caps, made of squares of strong cotton sheeting, fifty-four inches wide; leave it to ferment and heat slightly, which it does naturally. This heat drives off the moisture, and cooks—so to speak—to some extent the woody fibre, and changes it into starch, and gum, and sugar, and makes it easily digestible and nutritious. And if it does not actually produce these changes, it prepares the fiber for digestion in the stomach of the cow, so that it can there undergo the changes by which it is converted into the sugar of the milk and the fat of the cream.

A GREAT SHEEP DAIRY.—In the district of Roquefort, France, there is a cheese factory which uses the milk of some two hundred and fifty thousand sheep, turning out, during the season, from three to three thousand five hundred tons. This is the celebrated Roquefort cheese, which is largely exported, and commands a very high price, both at home and abroad. The ewes give such an abundance of milk, their lambs get sufficiently well grown

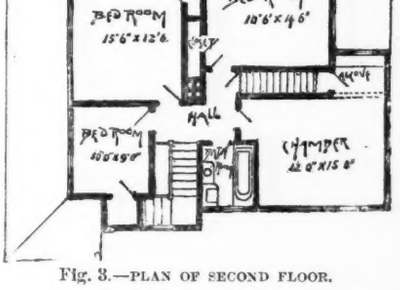


Fig. 3.—PLAN OF SECOND FLOOR.

to be safely weaned at two months' old, leaving the dam then to be milked, for the purpose of making cheese. Such sheep might be profitably kept on hilly lands in our own country, which are too rough, or too stony and rocky to be easily cultivated.

The Growth of Wheat and its Products in the Mill.—I.

JOHN J. WILLIS, SUPERINTENDENT OF LAWES & GILBERT'S EXPERIMENTAL FARM, ROTHAMSTED, ENGLAND.

Among the many invaluable experiments conducted by Sir J. B. Lawes, Bart., and Professor J. H. Gilbert, at Rothamsted, England, there are none more interesting, and certainly none more important to the people of the world at large, than those on the continuous growth of wheat for nearly half a century on the same land, commencing 1844, and continuing up to the present time, together with the investigations of the chemical components of wheat products in the mill, according to the conditions of growth, or the circumstances of their preparation. These, we venture to affirm, are subjects worth the attention equally of States, and of men of science. For if there is one agricultural product, which more than any other, may be taken as a symbol of civilization and progress, it is wheat, forming, as it does, so important an article of food to the great human family, and the consumption of which, to a very large extent, may be taken as a measure of the national prosperity of a country.

The records, then, of a field of fourteen acres, on which wheat has been grown without manure, and by different kinds of manure year after year for 44 successive seasons, without either bare-fallow, or a fallow crop, and in which the lowest production per acre in the first year on any plot was 15 bushels of dressed grain, and in 1886, the last year, 9 bushels, and highest in the first year 24¼ bushels, and the last year 45¼ bushels; with an extreme range of from 5 to 56 bushels of wheat per acre, cannot fail to be of much interest at once to the practical farmer, the miller, and economist. It has been demonstrated by numerous experiments, both in the old world and in the new, that not only may the relative proportions of the different parts of the wheat plant vary considerably in different specimens, but also that the composition of the berry itself is liable to great changes, according to the variety employed, the mode of culture, the season, the nature of the soil, and the manurial ingredients used. In fact, the more wheat, which is characteristically a starchy product, is perfectly matured, whether through the influence of variety, soil, season, or manure, the higher will be the proportion of flour obtained by milling, and as a rule the lower will be the proportion of nitrogenous substances, the lower that of the bran, and the higher that of the starchy compounds.

The following table illustrates the effect of season, independently of manure, upon the quantity, quality, and chemical composition of wheat grain, each in two unfavorable, and in two favorable years for the crop.

Table I.—Showing the yield of wheat grain per acre, and the general characters of the produce in each of four seasons, at Rothamsted:

HARVESTS.	*Produce of Grain per Acre.*	*Weight per Bushel.*	*Nitrogen in dry Matter.*	*Total Albuminoides.*	*Ash.*
	lbs.	*lbs.*	*Per Ct.*		
1852	1390	56.8	2.02	12.6	1 96
1856	1832	57.4	1.98	12.4	1.92
1858	1993	61.4	1.96	12.2	1.96
1863	2761	62.6	1.66	10.4	1.75

It is seen by their date, as indicated by the weight per bushel of the dressed grain, that the quality was the lowest in the first and the highest in the last of the four seasons in their chronological order. There can be no doubt, therefore, that so far as quality of produce is concerned, the last two seasons were far superior to the first two, which were, in fact, very bad seasons; while the two later years were much better, and the last of the four, one of very high quality. As to quantity of grain too, there is an increase from the first to the fourth season, the last yielding about twice as much as the first. Coincidently with these general agricultural characters of great superiority in the produce of 1863, there is by far the lowest average percentage of both nitrogen and mineral matter (ash) in the dry substance of the grain.

There is evidence from these facts that favorable maturition of wheat grain means the greater accumulation of non-nitrogenous organic substances—carbohydrates, and especially starch—the result necessarily being a lowering of the proportion, though not of actual amount, of both the nitrogenous and the ash constituents. In order to give some idea of the extent of variation in quantity and quality, to which one description of wheat is liable, when under both climatic and manurial influences in different seasons, we append the following table, showing the produce of selected plots at Rothamsted, in the year of the greatest yield, 1863, and in that of the worst return, 1879, together with the average produce over a period of 34 years.

Table II.—Rothamsted experiments, showing the produce of wheat grain per acre, and the weight per bushel, in best season, 1863, and the worst season, 1879, and the average of 34 years, 1852-1885:

DESCRIPTION OF MANURE. QUANTITIES PER ACRE.	*Best Season.* 1863	*Worst Season.* 1879	*Difference.*	*Average 34 years.* 1852-85
	Dressed Grain per acre—Bush.			
Without manure	17¼	4¾	12½	13⅛
Farm-yard manure, 14 tons	44	16	28	33¾
Mixed min'al manure alone	19⅝	5⅝	14	15¼
Mixed mineral manure and 200 lbs. ammonium salts.	39⅝	10½	29⅛	24⅛
Mixed mineral manure and 400 lbs. ammonium salts.	53⅝	16¼	37⅜	32⅞
Mixed mineral manure and 600 lbs. ammonium salts.	55⅝	20⅝	35⅛	36⅜
Mixed mineral manure and 550 lbs. nitrate soda	53⅝	22	33⅝	36¼
	Weight per Bushel—Pounds.			
Without manure	62.7	52.5	10.2	58.0
Farm-yard manure, 14 tons	63.1	56.8	6.3	60.1
Mixed min'al manure alone	63.0	53.5	9.5	58.7
Mixed mineral manure and 200 lbs. ammonium salts	62.3	56.5	5.8	59.6
Mixed mineral manure and 400 lbs. ammonium salts.	62.5	56.7	5.8	59.6
Mixed mineral manure and 600 lbs. ammonium salts.	62.3	56.5	5.8	59.3
Mixed mineral manure and 550 lbs. nitrate soda	62.1	56.5	5.6	58.8

It is seen from these results that the difference in yield of the various plots in the best and worst of the 34 seasons is very marked. In most cases the difference approaches the average produce of the plots. Not only season, however, but soil and locality also exercise an influence in the growth of the wheat crop. The Rothamsted results are obtained on one description of soil, and in one locality only. Reference to the next table shows the results obtained in experiments conducted at Rothamsted during the same 8 years, but in two separate fields, at the same place, in one field for 34 years; at Woburns, Beds, for 9 years; at Holkham, Norfolk, for 3 years, and at Rodmersham, Kent, for 4 years. Thus the experiments were made on various soils, under different conditions from previous treatment, and in various seasons; yet the general character of the results are accordant with each other.

Table III.—Results of experiments on the growth of wheat by different manures, on different soils, in different localities, and in different seasons:

MANURES APPLIED.	*Dressed Grain per acre. Bushels. Average Annual Results.*					
	Rothamsted.					
	8 Years. 1856-63.		*34 years,* 1852-85.			
	Broadbalk Field.	*Hoos Field.*	*Broadbalk Field.*	*Woburn, 9 years.* 1876 to 1885.	*Holkham, 3 years.* 1852 to 1854.	*Rodmersham, 4 years.* 1856 to 1859.
Without Manure.	16	15	13¼	17¼	18	25⅝
Mixed Miner'l Manure.	19	16⅛	15¼	18	19⅛	28½
Ammonium Salts alone.	23¼	26⅛	20¾	26¼	27¼	31½
Mixed Min'l Manure and Ammonium Salts.	38½	37⅜	32⅞	39⅛	32⅝	33½

All these experiments show that mineral manures alone add very little to the produce over and above that obtained without manure. A given amount of nitrogen in the form of ammonium salts produced more increase of crop than minerals without nitrogen, but to obtain a full crop of wheat, these experiments teach us, that we must apply to the soil both mineral and nitrogenous manure in combination. But the chief point of interest to a growing and wheat exporting country, like America is, the evidence which the results of such experiments, as those quoted, afford, as to the constantly increasing requirements of a largely importing country like Great Britain.

Before going into the important question of the amounts of bread stuffs required for importation and consumption by the United Kingdom, and the sources of supply, let us examine a little further the capabilities of the English soil for the production of wheat. The Rothamsted experiments, as already mentioned, commenced in the year 1844, and one portion of the field devoted to the continuous growth of wheat, has been left entirely without manure from that time up to the present, a period of more than forty years. The cultivation of the land has been throughout of the most simple description, and no attempt has been made to increase the crop by deep or subsoil plowing. The land has been kept mostly free from weeds. In the table to be given in another article, will be found a summary of the results obtained without any manure, given in four periods, of ten years each.

The Bloodhound.

We present on the opposite page a spirited illustration of a group of bloodhounds engraved for the *American Agriculturist*, after the great picture by Goddard. This breed of dogs was named from their supposed power of scenting blood drawn from a wounded animal. In the old days, before firearms were invented, the arrow from the bow of a skillful archer would wound a deer, and then the bloodhounds chased it down, passing by all the others of the herd in their eager pursuit of the animal marked down by the arrow. In the United States they were formerly, as is so well known, employed on some of the large plantations of the the South to hunt fugitive slaves. In Georgia packs are still kept to guard the camps of the convicts, who are held in penal servitude for crime. Since the rifle has displaced the bow as a weapon of the chase, pure-bred bloodhounds have been kept in England only by fanciers, and those in this country have a large admixture of the blood of milder breeds of hounds. Our illustration, however, shows the bloodhound in all its purity. The wrinkled forehead, deep jaws, long silky ears, small, deep-set hazel eyes, pendant jaws and loose lips, which all combine to impart a gloomy and sinister expression to the head of a bloodhound, are shown in the entire group, but are specially strong in the two leading dogs. The deep chests, strong, muscular legs, flexible feet, and well curved tail are also shown in perfection. Pure-bred bloodhounds can scarcely be regarded as desirable for domestic pets. They are high-spirited and impatient of control, and when aroused, either by the smell of blood or other cause, they are likely to snap even at the hand that feeds and caresses them. But when crossed with milder mannered breeds of hounds, the progeny retain the marvelously keen powers of scent and tireless energy, without the fierce nature of the pure-bred bloodhound. The dogs kept in the Georgia convict camps are trained to follow the trail of a fugitive prisoner through every kind of obstacle, and when he is found, to "corral" him, and arrest his flight without inflicting any personal injury.

FRUITS AND VEGETABLES IN HOUSE-CELLARS.—It is neither healthful nor agreeable to have many vegetables stored in the cellar of the dwelling. See if there is not a place to make a cellar under an out-building, or one completely detached. If the house-cellar must be used, secure ample ventilation by way of the chimneys. Whenever any putrid smell arises, the vegetables or fruits should be looked over at once, and all decaying matter removed.

BLOODHOUNDS ON THE TRAIL.

Engraved after Goblaert for the American Agriculturist.

OUR BASKET.

Clubs can at any time be increased by remitting for each addition the price paid by the original members; or, a small club may be made a large one at reduced rates, thus: One having sent 5 subscribers and $6.00, may afterwards send 5 names more and $4.00, making 10 subscribers at $1.00 each; and so for any of the other club rates. Subscriptions can begin at any time, as every number of the paper is complete in itself.

Bound Copies of Volume 45 (for 1886), uniformly bound, in cloth, gilt backs, will be furnished at this office for $2. If sent by mail, $2.30. We can usually supply at same rate any of the previous volumes, *i. e.*, from volume 16 to 45 inclusive.

Fish for a Pond.—L. C. Kuber, Cook Co., Ill., has a pond, where an excavation was made in taking out clay for bricks. He asks us what fish would succeed in such a pond. We should try German Carp, as they are very hardy, grow rapidly, and are an excellent food fish.

Brick Dust and Ashes.—"L. C. K.," Cook Co., Ill., has a large amount of pulverized burnt brick, mixed with ashes, which has remained for years in a pile. He asks us if it is of value as a fertilizer. The fertilizing value will depend upon the amount of ashes it may contain. If the mass has been exposed for years to the weather, it is probable that these are pretty thoroughly leached, and that the mass is of no more value than brick dust. This, if it is not far to cart it, may be of use on a stiff clay soil, as an ameliorator.

How Not to Send Plants.—Do not take a fresh plant, double it up a few times, and place it in a letter. When it reaches us it may be recognizable, but usually it will be in a half decayed condition, that makes examination difficult, if not impossible. Fresh plants should be sent in a box, or the plants may be dried between folds of newspaper, and when quite dry, sent by mail between pieces of pasteboard, to prevent breaking. We can, as a general thing, determine a dried plant quite as readily as a fresh one.

Preserving Milk.—J. C. Ecippoe, Lycoming Co., Pa. We know of nothing that can be safely added to milk to preserve it. The best method is to treat it as fruits are canned. Bottle the milk (champagne bottles are the best), cork it carefully, and tie down the corks. Place some straw in the bottom of the wash boiler, and set in the bottles of milk with straw between the bottles. Fill the boiler with water, and let the heat rise gradually, until the water boils. Allow it to boil for ten minutes, remove the boiler from the fire, and allow all to cool.

The "Cinnamon Vine."—W. A. McCanse, Lawrence Co., Mo., sends us a leaf from a catalogue, in which the "Cinnamon Vine" is extravagantly praised, and asks us if it will do for him to invest in it. The Cinnamon Vine is simply an old and well known plant, under a new and unwarranted name. This much-extolled "Cinnamon Vine" is nothing more than the old Chinese Yam, *Dioscorea Batatas*, which may be had at all first-class seed stores. As a climber, it is very pleasing, and the odor of its flowers is very agreeable. But let us call things by their right names. The proper name of this so-called "Cinnamon Vine" is Chinese Yam.

His Manure Pile.—W. H. Erskine, McLean Co., Ill., writes us: "We haul, say a hundred loads, and make it into a long, snug pile, without any shed over it. When it begins to smoke pretty freely, we pour water on it, say twenty barrels, which prevents fire-fanging. After a few weeks we make a new pile of it. In a few weeks more it will be ready for use. Would like to know if the water does not hasten rotting, without injury to the manure." The practice is excellent; the addition of water, to control the heat, promotes the desirable decay, prevents the excessive heat which causes "fire-fanging," and which is most destructive to the manure. To keep up a proper degree of heat, and control it by the use of water, is the true practice, and will result in a mass of properly fermented manure. Other farmers may follow Mr. Erskine's method to their great advantage.

Sumach Culture.—T. F. Wood, New Hanover Co., N. C. Sumach is not cultivated, but grows in the greatest profusion in some counties in Virginia. It is mainly collected by the negroes, who dry it upon a well-cleared and smooth piece of ground, and when dry make it into all sorts of bales to take it to the mill. There are several sumach mills in Richmond, and probably in other towns, where the sumach is ground, bolted and baled for market. Unless there is a mill at hand, it will not pay to gather and dry the sumach, however abundant it may be. There is no market for the unground sumach, unless there be a tannery close at hand.

Celery in Winter.—Seth Knowles, Barnstable Co., Mass., asks us for the best method of keeping celery in fall and early winter. We know of no better method than that of keeping it in trenches. A trench is dug in a dry place, a foot wide, and as deep as the celery is long, so that when set in the trench, the tops of the celery will be level with the surface of the ground. The celery is set upright in the trench, packed closely together. When really cold weather is at hand, cover the celery with litter of any kind, leaves being the best. The covering should be gradual, being governed by the severity of the weather.

A Clover for a Name.—Mr. J. Pound, Shelby county, Kentucky, sends us the "Low Hop Clover," *Trifolium procumbens*, asking its value. This has yellow flowers, which turn brown as they fade. It was introduced from Europe, and is now found almost everywhere in sandy fields, and as a roadside weed, from New England to Virginia. There is another species much resembling this, the true "Hop Clover," *Trifolium agrarium*. The two are often found growing together. This last is often a foot high, while the other rarely exceeds six inches. They have no agricultural value, most animals avoiding them.

Peppermint Culture.—Ben. G. Hayes, Wayne Co., Mich. We would not advise any one to go into the culture of peppermint, for the reason that the localities where the crops are successfully grown are limited, the crop is readily controlled by speculators, and the price is subject to great fluctuations. The only form in which the product is marketed, is the oil, obtained from the fresh plant by distillation, with a steam still. The process cannot be taught by a description, but one must learn by going to some establishment in operation. It is one of the special crops that are very risky. Visit some of the peppermint farms in your own state, in St Joseph Co., for example, before you undertake peppermint culture.

Welcome from Virginia and North Carolina.—W. S. Bolton writes us from Princess Anne County, Virginia: "Having traveled along the eastern shore from Cape Cod to South Carolina, I can assure the readers of the *American Agriculturist*, that Virginia and North Carolina will extend the hand of fellowship to all good men who come within their borders to follow any peaceful pursuit, whether on the farm, in the mill, or upon the waters. Of course it would be pleasanter for them if they came in such numbers as to find society in each other, but when this is not practicable, no one need hesitate to come alone. Truck and fruit lands in the tidewater regions can be bought at low figures."

Rescue Grass and Japan Clover.—Messrs. Isaacs & Stearns, Benton county, Oregon. Rescue Grass (*Bromus Schraderi*), was extravagantly praised on the continent of Europe some twenty years ago, but of late years we hear little about it. It belongs to a genus—Bromus—the species of which have little agricultural value. Animals are said to eat the Rescue grass, in the fresh state, but when made into hay, it is of very inferior quality, and then refuse it. Japan Clover (*Lespedeza striata*), is a useful plant in the Southern States, where it clothes the old fields and waste places. It is said that it will not succeed north of latitude thirty-six degrees. If this be true, it will be of no use in your locality.

Laws for the Protection of Fish.—The Legislature of the State of New York has on the 15th of June, enacted several important amendments to the game laws of the State. Among the most important of these are that no person shall catch, or attempt to catch, or kill, or expose for sale, or have in possession after the same has been caught or killed, any speckled trout, brook trout, California trout, or brown trout, save only from the first day of April to the first day of September in each year, except in the counties included in the "Forest Preserve." Any person who shall at any time take or catch any trout from any of the waters of this State, less than six inches in length, shall immediately place such trout back in the waters from which it was taken. No person shall at any time willfully molest or disturb any of the fish mentioned, while they are upon their natural spawning beds, during the spawning season, except in the waters of Lake Ontario. Any person violating any of these provisions shall be deemed guilty of a misdemeanor, and in addition thereto shall be liable to penalties up to fifty dollars. The catching of black bass in Lake Erie and Niagara River above the Falls, and other waters specified, between the first day of January and the first day of July, is prohibited. Black bass, Oswego bass, muscalonge, or pike, perch, are similarly protected by the act. Another act provides against the use of any net or seine, or any set line, or set pole in any lake, pond or stream inhabited by speckled trout, brook trout, salmon trout, or land-locked salmon, except in the waters of Lake Ontario. Restrictions are also put against fishing through the ice.

Grass for "Beaver Lands."—Messrs. Isaacs & Stearns, Benton county, Oregon, write that they have a large amount of "Beaver Land," which is being drained, and they wish to know what will be the best kinds of grass to sow upon the land, for meadow and permanent pasture. We suppose that "Beaver Land" is equivalent to marsh land, and when brought into proper condition by draining, will be excellent grass land. In this country, very little attention has been given to the selection of grasses for particular soils or localities. In New England, the few farmers who have reclaimed marshes by draining them, have sown upon them the same kinds of seed that they sow upon uplands, usually Timothy and Red Top, and perhaps the best course for our Oregon friends will be, to sow their reclaimed "Beaver Land" with such grasses as succeed elsewhere. Most of the mixtures of grasses proposed for different soils are from English experience. As an example, we quote the following: "Mixture for reclaimed marsh lands."

	POUNDS.		POUNDS.
Fiorin	2	Reed Canary Grass	4
Red Top	2	Timothy	6
Hard Fescue	3	Rough-Stalked Meadow Grass	3
Meadow Foxtail	2	Black Medic	2
Meadow Fescue	2	Red Clover	4
Fowl Meadow	4	White	4
Italian Rye Grass	4		
Perennial Rye Grass	5		
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For marsh lands, liable to overflow, a still different mixture is advised. It will be noticed that in the above mixture, there are grasses with which there has been very little, if any experience in this country, and the value of such a mixture can only be ascertained by trial.

Agricultural Experimentation in Nebraska.—The regents of the University of Nebraska have recently made provision for experiments and observations in various subjects bearing upon the agricultural industries of the State. In their annual meeting in June, they made appropriations for carrying on the work during the fiscal year ending June 30, 1888. The subjects thus provided for are as follows, viz.: 1. Popular farm experiments, largely illustrative of well-known truths in agricultural science and practice, and designed to direct attention to, and arouse interest in agricultural research. 2. The investigation of the temperature of the soil at different depths, throughout the season. 3. The investigation of the water of the soil (lysimetry). 4. Experiments upon subterranean irrigation. 5. Continuous meterological observations. 6. The investigation of the diseases of domestic animals, and particularly of the swine plague (hog cholera). 7. An investigation of the chemical properties of the soils and waters of the State. 8. An investigation of the question of the possibility of irrigation in different parts of the State, utilizing the waters of our rivers or by means of artesian wells. 9. The investigation of the insects which are injurious to vegetation and animals. 10. The investigation of the fungi which are injurious to vegetation and animals. 11. The investigation of the grasses and forage plants of the State. The aggregate amount of money appropriated directly for these purposes is eight thousand dollars, to which should be added the proceeds from sales of stock, and other sources, which the available funds up to full nine thousand dollars. In the division of this fund the several subjects are of necessity treated quite unequally; thus, while provision is made for full and continuous work in certain lines, it has been found impossible to do more than provide for a little work in others. The favored topics in the foregoing list are the first six mentioned. Still some work is being done upon all the remaining ones, and in due time these will all receive their full share of attention.

How Many Eggs from One Hen?—L. B. Smith, Essex Co., Mass., asks us: "Can a hen lay more than six hundred eggs during her whole life; is six hundred nature's outside limit?" If any of our readers can give this information, we shall be pleased to hear from them.

Melon Pear.—S. B. Craft, Queens county, N. Y., desires information whether the Melon Pear, *Solanum Guatemalense*, can be grown where the pepper and tomato ripen. The Melon Pear requires a longer season than tomatoes, but by starting the seeds in a hotbed or greenhouse, and forwarding the plant in pots, previous to transplanting them into the open ground, the fruit will ripen on Long Island.

A Freak of a Rose.—Mrs. S. F. Midwinter, Monmouth county, N. J., sends a specimen cut from one of her rose bushes, in which the rose, as if not satisfied with its first attempt at producing a flower, tries again, and produces a second flower, which is pushed up from the center of the first. The flower was too far gone, when it reached us, for the variety to be determined, but it is a peculiarity that occurs with many different roses. Such growths, if common, are always interesting, as no two are alike, each specimen presenting some peculiar development.

Room in Southeastern Utah.—Mr. M. Richardson, Emery county, Utah, writes us: "Several villages in this section are still partly open to settlement. The climate is mild, and with irrigation, California fruits, melons, peanuts, sweet potatoes, cotton, cane, tobacco, corn, potatoes, beans, and other crops can be raised. The Grand River, which is one thousand feet wide at some points, is capable of furnishing abundant water for irrigation, and many mountain streams give an unfailing supply of clear, pure water. Were it not for natural barriers, these valleys would long since have been settled by the Mormons, who are good farmers."

Plant for a Name.—There comes in a box from Mr. James Meyer, Colorado county, Texas, a ball, consisting of fern-like stems, or fronds, closely incurved, and rolled together into a rounded mass. We recognize it as one of the so-called Resurrection Plants, *Selaginella lepidophylla*, a native of the arid regions of the far West. During the dry seasons, this is seen on the rocks, rolled up, as if dead, but when moistened by the rain they spread out into beautiful green rosettes of handsomely divided fronds. This expanding and contracting occurs long after the plant is dead, it being a mechanical effect, due to moisture, and not an indication of vitality. The plants are sold by some seedsmen, and often by the street venders, as "Resurrection Plants."

Procession Worms.—N. W. Wright, Randolph county, Indiana, writes us: "I saw something about six or seven inches long and about half an inch in diameter moving slowly over the ground; it had somewhat the appearance of a dirty garter snake. On closer examination it was found to be a roll of small black-headed, sleek, and almost transparent worms, moving in a mass, and maintaining the form of a snake. The worms were about half an inch long. Can you inform me what they were?" In the absence of specimens, we are unable to name the larvæ of the insect which you observed, moving in close, compact body or procession. Similar processions of caterpillars and worms have been frequently observed in this country, as well as in Europe, and a European species of moth (*Bombyx processionæ*) received its specific name from the habit of the caterpillars moving in a sort of procession when leaving their nests in the morning in search of food. You should always send specimens when wishing information in regard to insect matters.

Potato and Tomato Blight and Rot.—A circular from the Department of Agriculture at Washington, proposes remedies for the "Potato and Tomato Blight and Rot," but fails to describe the diseases to which these terms are applied. If, under these terms, that annoying disease which affects the fruit of the tomato is included, gardeners will gladly experiment with any remedy that promises relief. Among the remedies in the form of liquid or powder proposed, we select that which appears to be best worth trial on the tomato rot, remarking that all the proposed remedies have the sulphate of copper (blue vitriol or blue-stone), as their active ingredient. The "Blight Powder" recommended in the circular, is made thus: Mix three pounds of anhydrous sulphate of copper, with ninety-seven pounds of flowers of sulphur. It would be difficult for one to find "anhydrous sulphate of copper" at any drug store, and the directions would have been more complete, had they said that exposing the crystals of sulphate of copper to a moderate heat until they fell to powder, it would then be "anhydrous." This mixture is to be blown upon the plants with such a bellows as are used for sulphuring grapevines. This seems to be worthy of a trial.

Coal Ashes.—Henry Hurdt, Erie county, New York. The amount of fertilizing material in coal ashes is ordinarily so small that it hardly pays to apply them. In coal ashes from the house, where the fire is kindled daily, by the use of wood, they will contain more or less of wood ashes, and so far as that goes, are of value. Their chief use when applied to soils is as an ameliorator, rendering very light and sandy land more compact, while on that which is very stiff and clayey, they have a similar effect to sand, in rendering them more open and pervious. The best use for coal ashes is to make paths and roads. A good coating of them upon a path, with a little soil thrown upon the surface, to help solidify them, soon becomes a walk equal to asphalt, and very pleasant to walk upon. The writer made a walk of this kind at the side of a very sandy public road, which is highly appreciated by all who use it.

Maple Galls.—W. J. Sandrock, Buffalo, N. Y. The roundish, wart-like green excrescences on the upper side of the leaf of your cut-leaf maple are galls, produced by a minute and almost microscopic species of mite. There are two species of these mites known to produce galls on the leaves of maples, and another on the wild plum. In fact there are many species of these gall-producing mites, few of which have as yet been described, or given names. The late Benj. D. Walsh, in his first "Annual Report of the Noxious Insects of Illinois," 1868, states that he was acquainted with no less than twenty distinct species of mites that form curious galls, or unnatural growths upon the leaves of various trees. Fortunately, however, these galls do not seriously affect the health nor the growth of the trees, although they are no doubt injurious to a limited extent. There is no known preventive, as the mites are too minute to be seen without the aid of a lens of high power.

French Law Against Oleomargarine.—France has enacted a stringent law "to repress frauds in the sale of butter." It prohibits selling, or exposing for sale, import or export, under the name of butter, of any margarine or other substitute for butter, or mixture of any such substances with butter. Retail dealers in oleomargarine or other substitutes for butter are to notify buyers of the character of the article, and to have it plainly marked on the package. Manufacturers and wholesale dealers are to plainly mark or brand every package so as to show the actual character of its contents, and all transportation companies, or persons who carry any substitutes for butter, are to keep plainly entered in their books and way-bills a record of the brands or marks on all such packages transported. The penalties for violation of the law are imprisonment from six days to six months, and fine of ten to six hundred dollars.

Corned or Pickled Beef.—C. S. Solomon, Dallas county, Texas, writes us, that on two occasions he lost the beef he had pickled, and asks us to send him a recipe for a pickle that will preserve the meat in his climate. In the city markets, a distinction is made between corned and salted, or pickled beef. Corned beef is intended for immediate use, and is but very slightly salted. Merely covering the surface of the meat with fine salt, or a mixture of salt and sugar, is sufficient to give the required degree of saltiness. In salting beef, and all other meats, there are a few points that must be observed: Before the meat is placed in the pickle, or otherwise salted, it must be completely cool, all the animal heat must have left it. Otherwise failure is sure to follow. Next, the quality of the salt is of the greatest importance. Turk's Island, or other sea-salt, is generally preferred. Another important point is, to keep the meat constantly submerged, keeping it beneath the surface of the pickle by the use of weights. Besides salt, saltpeter, sugar, and potash are used in the different recipes for pickle. Saltpeter has little preservative effect. Its main use is to restore the red color to the meat, and may be omitted without detriment. Sugar has important preservative properties, and imparts a pleasant flavor to the meat. Potash is used for the purpose of making the meat more tender; we regard it as of doubtful expediency. The following is a good general pickle; To each gallon of water add a pound and a half of salt, half a pound of sugar, and half an ounce of saltpeter. Boil and skim as long as any scum rises. When quite cold, pour it over the meat. We have tried this for hams, and found it excellent, and it is said to be equally good for beef. Whether this would answer for Texas, where the "heated term" is of long duration, we doubt, and would ask those who have had experience in Texas, or other of the warmer States, to come to the relief of Mr. Solomon, and tell him how he may surely preserve his supply of beef.

Animal Ailments.

Lampas.—George Treimer, Clinton Co., Mo. This inflammation and thickening of the gums and mucous membrane of the base of the mouth of horses, is produced by an inflammatory condition of the system. It occurs mostly in young horses when cutting their teeth, which process causes an increased flow of blood to the parts. In most cases it causes little or no inconvenience, and unless it interferes with the feeding of the animals, no special treatment is required. The barbarous practice of burning the inflamed parts, which generally only increases the trouble, has fortunately been discarded in civilized communities. A few slight incisions over the region of the teeth may afford relief, or astringent washes of alum or chlorate of potash may be applied. At the same time give salts or other cooling medicines.

Choking Cattle.—When feeding apples or roots, carelessness may lead to the accidental stoppage of the gullet by a piece of the food, which has been swallowed whole. The occurrence of this may be easily prevented by chopping such food finely in a box by means of a spade with the edges sharply ground, and feeding it with a little ground meal, or finely cut hay or grass. When an accident of this kind does happen, it is repaired very quickly by crushing the obstacle in the throat in this manner: A block of smooth, thin board is placed upon each side of the gullet over the obstacle; one person holds a heavy block to one side of the throat, and another person gives the opposite block a smart blow with a mallet. This crushes the soft piece of food without injuring the gullet; if it is slightly bruised it will heal in a few days, and the injury will be less than that resulting from the use of a probang, by which the obstacle is violently forced downward into the stomach.

Depraved Appetite in Cows.—R. S. Miller, Steuben Co., N. Y., is annoyed by his cows' appetite, which leads them to eating rotten wood and rubbish. This may be only an acquired habit, but it may also be due to some irritation of the stomach, which deranges the digestion and causes a craving for these substances. There are various causes for this irritation, as condition of pregnancy, diseases of the liver, tuberculosis, and the presence of foreign matter in the stomach. A ball of hair may produce this result. It is almost always associated with hide-bound, dry, rough coat, and other evidences of unthrift, for want of proper nutrition. A good laxative should be given, and a diet consisting of bran and linseed mashes, cut roots with corn meal, and other good, wholesome food should be provided, but should be given in light rations.

Loss of Hair.—R. V. Jonson, Davis Co., Kans., has a pony seven or eight years old, apparently in perfect health, who suddenly lost the hair from her tail. After two weeks nearly every hair had dropped out, and small pustules formed all over the tail, and discharged a thick, yellow pus. The affected parts were washed freely with warm water and soap, and afterwards rubbed with mercurial ointment. The sores have nearly all dried up, new hair seems to be starting a little, and our correspondent desires suggestions how best to promote its growth. Oscar Gleason's favorite medicine for this purpose, is a mixture of sulphur and sweet oil, in proportions to make it as thick as cream. Cleanse the parts well with castile soap and water at least twice a week, and then thoroughly rub in the ointment.

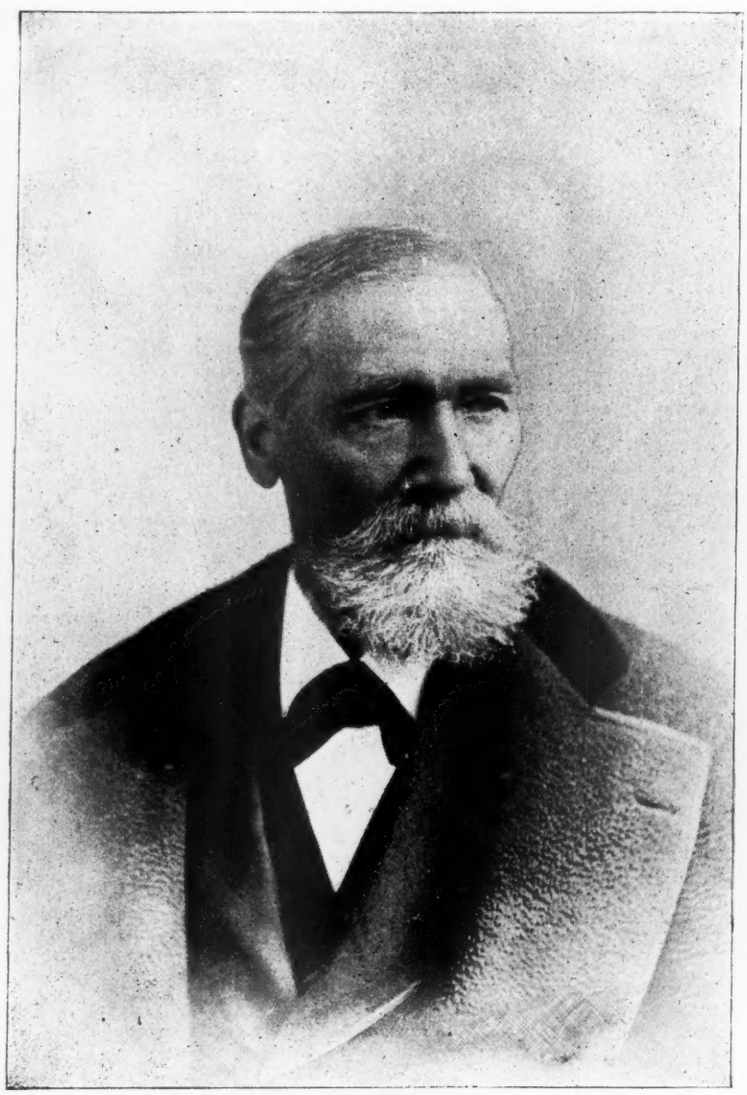
Colic.—A. B. Allen, Ocean Co., N. J., writes us: "Last Sunday, after a gentle drive from morning service at church, our horse, soon after being put in his stable, commenced pawing violently, then lay down, rolled and kicked, and stretched out his head. The man who attends him immediately called me, and I knew at once that the horse had a violent attack of colic. We happened to be out of salts, and I sent to a neighbor, who is a good horseman, to see if he had any. But he recommended the following mixture as preferable to salts, being milder, and acting more soothingly: Half a pint of molasses, one pint of warm milk, one pint of warm water, two teaspoonfuls of black pepper; mix well together, and administer from a strong-necked bottle. This dose is for a horse of fifteen hands; under this height it should be a little less, and over it, increased. If it does not cure the pain within an hour, give a second dose of half the quantity of the first, and if another hour brings no relief, add a third half dose."

Soreness of the Skin.—L. W. Cotton, Boone Co., Ind., has a horse which has a breaking out similar to hives. The pimples are larger in summer than in winter, and cause itching. Mr. C. desires us to suggest the proper treatment. We would advise complete change of diet, and the giving of gentle laxatives, with green food. The skin should be washed twice a day with soap-suds. If this fails to cure after a few weeks, give half an ounce of bi-carbonate of soda per day in its drink.

Peter Henderson.

Author of "Gardening for Profit," "Practical Floriculture," "Gardening for Pleasure," etc., etc.

The publishers of the *American Agriculturist* are now bringing out new revised and enlarged editions of Peter Henderson's books; and in this connection, we herewith present an engraving and a brief sketch of him, in order to gratify the wishes of such readers, as desire to know more about the successful career of this author and horticulturist. Peter Henderson was born at Pathhead, a small village near Edinburgh, Scotland, in 1823. He left school at the age of fifteen, having such a fair English education as the schools in those days could give. He was then indentured as an apprentice to a gardener for four years. Here he quickly showed the enterprise and ambition that have characterized his life, for although he commenced his apprenticeship in a company of ten, before he was eighteen years of age, he had twice successfully competed for the medals given by the Botanical Society of Edinburgh for the best herbarium of native and exotic plants. This competition was open to the whole of Great Britain. This gave him a practical knowledge of botany, which has been a great benefit to him as a horticultural writer. While he was yet an apprentice, not content with the education he received at school, he and another youth walked ten miles twice a week for two years to attend a mathematical school in Edinburgh. This illustrates the difficulties encountered by youths in those days to obtain an education. After serving his apprenticeship in Scotland, he emigrated to this country, arriving in New York at the age of nineteen. He worked for one year at Thorburn's Nursery, Astoria, Long Island, and another year with the late Robert Buist, of Philadelphia. Mr. Buist was a life-long friend of Mr. Henderson, and has often said that the man who has since become so prominent a horticulturist, was as a boy one of the best workmen he ever had. From Mr. Buist Mr. Henderson went to Mr. Charles Spang, of Pittsburg, Pa., to erect a range of graperies and greenhouses, and to superintend his private grounds, where it took him nearly three years to accumulate the capital of $500.



PETER HENDERSON.

He started as a market gardener in Jersey City, in 1847, and for many years this was his principal business. Gradually, however, as the taste for ornamental gardening increased, his early botanical training came in use, and the market gardening part of his business was abandoned. He had already written his famous book "Gardening for Profit," of which upwards of 100,000 copies have been sold. This has helped thousands of farmers in every State and Territory in the Union to a comparatively easy and profitable business.

Mr. Henderson abandoned market gardening some fifteen years ago, and since then has thrown all his energies into the business of florist and seedsman. His greenhouse establishment now covers nearly five acres of glass, employing on an average of one hundred hands throughout the year. This department is entirely under the personal management of Mr. Peter Henderson. The seed department, which is one of the largest establishments of the kind in the United States, is managed by his two sons, Alfred and Charles Henderson.

Peter Henderson's name is perhaps as widely known as that of any horticultural author in our country. He has been before the public as a horticultural writer for nearly forty years, during which time, besides his books, he has written many hundred magazine articles. The sales of his several books in the aggregate exceed two hundred thousand copies. The wonder is, that with the large business he controls and the large correspondence involved thereby, he has found time to write so much. But he inherited an excellent constitution, is extremely temperate in his habits, and possesses the power of quickly deciding on the most important subjects. He has therefore been able to do an immense amount of work with comparative ease. It has always been Mr. Henderson's unswerving practice to spend three or four hours daily in the open air, and we find him at sixty-four both mentally and physically equal to most men at fifty.

TOOLS AND MACHINES.—There is no doubt that more farm implements are lost by neglect than are worn out by use. Many of them will not be required until next spring, and these should be at once put away for the winter. If any of the iron or steel parts are rusted, rub off the rust, using fine sand, applied with a corn cob. When these parts are thoroughly cleaned, go over them with a mixture of lard and rosin, an ounce of rosin to a pound of lard, melted together, and thoroughly stirred while cooling. This is an excellent preventive of rust, and should be applied to all tools and machines when put away for the season. The wood work of machines is usually treated with linseed oil. Apply the raw oil, as much as the wood will absorb. Some farmers find that crude petroleum is the best application to the wood.

Tile Drainage on Farms.

One of the most striking indications of agricultural progress in the Prairie States, is the great yearly increase in tile draining. Large establishments for the manufacture of tile are increasing in number, yet in some seasons they fail to keep up with the demand for drain-tile. Illinois, and some other States, have well digested codes of drainage laws, which facilitate draining large districts in an intelligent and effective manner. As a result of this beneficent work, many thousand acres of swamp land have been reclaimed, and other thousands of arable land have been improved to an extent far beyond the cost of drainage. But it is not alone in the level prairie regions that tile drainage has proved beneficial. In the more uneven sections of the Atlantic and Middle States it has greatly changed the methods of agriculture. The melting snows, and the "early and latter rains," which render an undrained soil too wet for cultivation, percolate through well-drained land, leaving it ready for the plow. Thus the season of active operation is practically lengthened by drainage. So general and invariable have been the benefits derived from judicious drainage that it scarcely seems credible that there was a time when the entire subject was regarded as debatable even by many leading farmers. The only questions now raised are those concerning the best methods, and experience is rapidly finding solutions for these. Of the various forms of tiles, the round is now employed almost exclusively, the old sole and horse-shoe shapes being little used. The round tiles are the strongest, as they resist pressure from every side, on the principle of the arch; and are more easily kept clear of sediment than any form with a flat bottom. Properly laid, and especially if collars are used, good drains of round tiles are practically almost indestructable. While underdraining may be done at any season almost, the most favorable time is when the soil is sufficiently saturated with water that a very small stream will constantly run at the bottom of the ditch. Under such conditions the work can be performed easier than when the ground is entirely dry, or when the water is in excess. A small current of water in a ditch, furnishes a cheaper and better index for grading than any level ever devised. A frequent mistake in tile draining, is that of digging the ditches too wide. This is not only a useless waste of labor, but it actually makes the grading and proper adjustment of the tiles more difficult. When the fall is slight, it is better to open the drains in considerable lengths before laying any tile, but where there is more descent, tile laying should closely follow the spading.

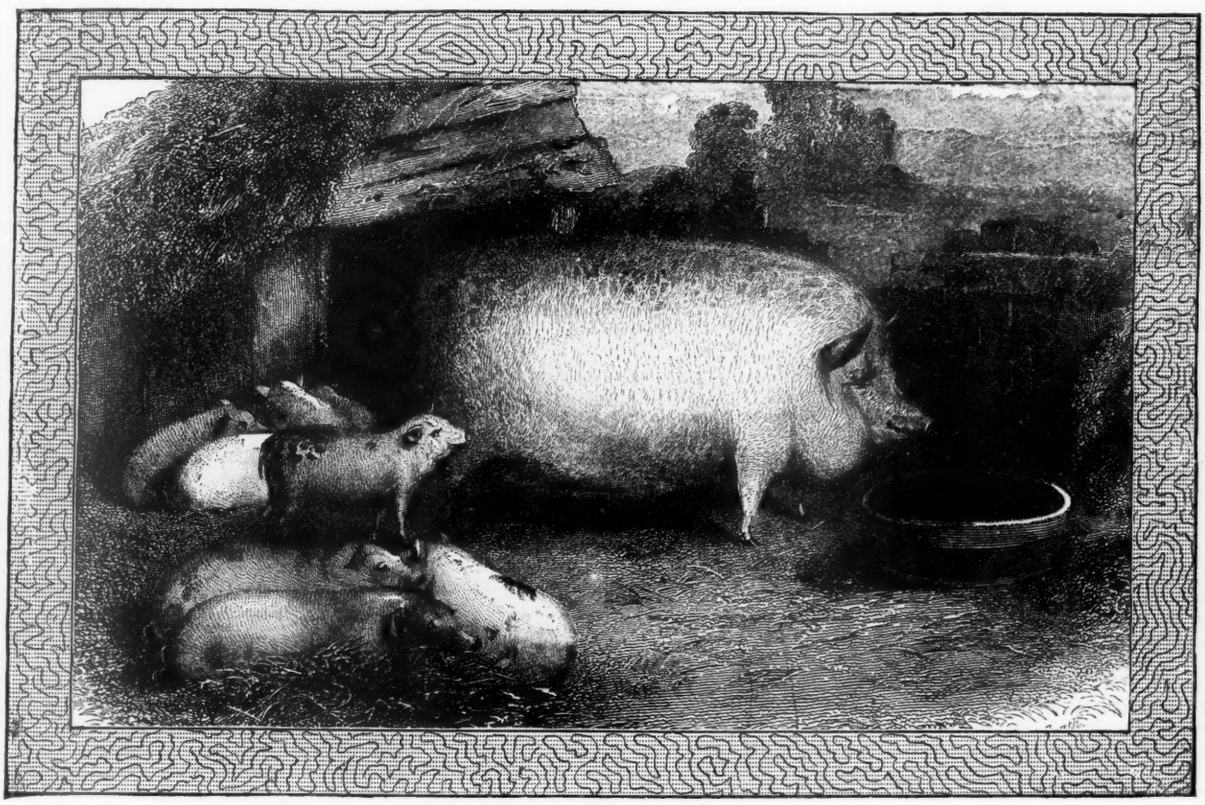
The White Swine of Yorkshire.

The hogs of Yorkshire, England, a few generations ago, were of a gaunt, coarse and unthrifty stock, and famous rather for enormous size than for any other quality. But careful breeding has changed all that, and the Yorkshires are now-a-days a valuable and most desirable type of swine. The characteristic of the old blood, in respect of size, was expressed some years ago, in the rather apocryphal story of the sign displayed by a public house of Surrey, the "Wheatsheaf," at Dorking, of a hog-skin, mounted after the fashion of taxidermists, dressed with its natural hair, and preserved in all the full proportion of the living beast. Tradition says that the height of this "specimen" was eighteen hands; its girth, eight feet; length, twelve feet, and its living weight fourteen hundred and fifty-six pounds. The tale is hardly to be believed, and accounts very readily for the reason of the suggestion that the breed whence the animal came is wholly extinct at this day, within the United Kingdom.

Mr. Culley, an authority upon British live-stock questions, has described the ancient Yorkshire swine as having been "plain, thin, and awkward, with very long legs; but what distinguished them most was two wattles or dugs, not unlike the teats of a cow's udder, which hung down from their throats, one on each side." Not an attractive description of any animal. But the system of careful breeding, introduced in later years, has effected total changes in both form and character, especially by means of crossing and recrossing with the Chinese, and the better descendants of the Chinese variety, with the view of making type and size suit the demands of consumers, and as the reader will observe from our illustration, the Yorkshires of the present are a very desirable sort of swine. In addition to the infusing of Chinese blood, the new Leicester strain, which Bakewell, of Dishley, created—as he did his sheep—by carefully selecting his breeding stock, and preserving, while he modified, the best points of the old race, had great influence in working out the change from the gaunt, unthrifty race of former times to the compact and available animals of this day.

By crossing with the New Leicesters the old white swine of Yorkshire lost in size, but gained in every good quality; it became deep-sided, small boned, short legged, and, in lieu of its original trait of fattening slowly, if at all, it received that of maturing easily, and rapidly. Its coarse, wiry bristles were transformed into a thin, fine hair. Specimens of the breed not unfrequently at two years old, weighed up to an average of seven hundred pounds, when slaughtered. In a word, the whole aspect of the animal underwent an utter metamorphosis.

Yorkshire breeders, in numerous cases, have come to prefer the pure New Leicesters to any modification of the ancient, and, as a consequence, in many parts of the country these are the only hogs met with by the observing traveler, or an intending owner. But some producers have deemed it wise to stand by the old stock so far as possible, and have succeeded in breeding excellently. Such is the source from which the animals in our illustration came, and they are presented because the highest awards at Smithfield Show were given them, in a strong competition with others, entered from different tribes of the large White race.



PURE-BRED WHITE YORKSHIRE SWINE.

Engraved for the American Agriculturist.

CLEAN STABLE FLOORS FOR COWS.—With an ordinary earth or plank floor it is almost impossible to keep the cows clean, but slatted floors are free from this objection. They are generally laid on a plain board or plank floor, though we have seen them placed on hard earth. The slatted frame is made movable, to facilitate cleaning underneath, where all chaff and liquid matter collect. There should be a solid board floor where the fore feet of the cow rest, as slats there are unnecessary. The slats, as well as the solid boarding at the front end, should be let into the side pieces, so as to make the frame level, which, when securely nailed, will be very durable; or the boards and slats may be nailed on the flat surface of the side pieces, within two inches of the edge, and a two-inch strip nailed on them, to make neat work.

Harvesting Roots.

When the roots are fully grown, a man, with a sharp, heavy hoe, goes along one row and clips off at a stroke the leaves from the roots on his right hand. It is easier to do this when the man walks backwards. At the end of the row he turns and retraces his steps in the same row, thus gathering the tops of two rows in one. Another man follows and with a digging fork turns the roots out into the empty space on his left or right hand as the case may be, gathering two rows of roots into one space. There are thus alternate rows of roots and tops. It is most convenient for the roots to be thrown in heaps between the rows, leaving spaces wide enough for the passage of a horse and cart, in which they are lifted with a broad, blunt fork, with tines bent somewhat, to hold the roots.

The tops are gathered and put in heaps in a convenient place, covered with straw, and then with a little earth, in which manner they may be kept fresh for several weeks, and will afford excellent fodder. The roots are put up in conical heaps in trenches two feet deep and four feet wide; covered with straw and then with earth; thus keeping in perfect condition until June of the next year. Care is to be taken to avoid heating, by putting ventilators in the top of the heaps to afford an escape for the heated and damp air, which gathers in the pits from the sweating of the roots; use round drain tiles or bundles of straight straw.

Carrots and parsnips are more difficult to grow than beets and mangels; but with care they will yield a heavy crop of most valuable fodder for winter feeding. Of mangels, the best kind are the long red and the yellow globe; of sugar beets, Lane's improved; of carrots, the large orange—the Belgian and Altringham are most suitable for field culture; of parsnips there is but one kind. Parsnips may be left in the ground all the winter with safety. Turnips of all kinds cannot be used in the dairy, except for dry cows, young cattle and bulls, and as they are inferior to the roots mentioned, no further notice need be given them.

Hitching Posts.

Cyril Marr, Yuba County, California, sends us several sketches of hitching posts, from which the accompanying illustrations are engraved. In figure 1 an inch and a half hole is bored or morticed in the post about five or six inches from the top, the doubled end of rope or strap being passed through the hole, over the top of the post and drawn tightly. Figure 2 is merely a stout post, well planted in the ground, and in the top of which are securely driven a staple and a hook. The rope or strap is doubled, passed under the staple and over the hook, and your horse is securely hitched.

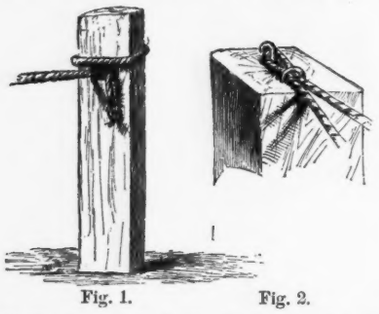


Fig. 1. Fig. 2.

Both the hook and staple should be only large enough to receive an ordinary rope or strap. With either post an ordinary hitching strap can be used in the usual way if desired. Figure 3 shows an old style arrangement for hitching horses, consisting merely of a staple, with or without a ring, snugly driven into a large tree. Figure 4 is the old hitching-rail, with chains attached, and prevents the horse from going all around the post he is hitched to. Any or all of these are handy, as well as readily made, and every farmer should have one or more in convenient places, near both house and barn.

Shall I Go to Oregon?

CARLOS W. SHANE.

In your April number I saw the above question. I came to this coast in 1846, overland, and have seen much of the whole region from San Juan Island, on the north, to Orange and Riverside in Southern California. Now in all this Pacific Coast region, there is a wonderful variety of climate as well as of soil. It is dissimilar to any part of the Ohio or Mississippi Valley region. No part of it has excessive heat or cold. In the mountain region, or all along the sea coast, let the days be what they may, when the sun sinks in the broad ocean, a cool mountain breeze sets in, and in very few parts can we dispense with our moderate winter bedding at night. In May or June there often come three days of no breeze and excessive heat, but three days is the limit. Our soil varies also, often showing a wonderful strength where the casual observer would pronounce it inferior. The great attraction is the equable climate with very few extremes. Work, hard and excessive, and continuous for years, awaits all persons coming to our north coast. Yet toil here is not wearing and exhaustive until age admonishes one to cease. A night's rest recuperates, and old and young awake to renew the struggles for a living. I have thrown many a mighty monarch of the forest, rafted many a lot of logs, and of sawed lumber. I am nearing my seventieth birthday. I was a weakly boy, I am strong and vigorous. Can I advise any one to come here? No. Come they will, and some will prosper, while others fail. It has been so, and will still continue to be. Would I return to my old home? No, not if a home were given me. I would pine for our grand old mountains, tall evergreen trees, and our equable climate. Let all come and see for themselves, and do their own thinking. We are on one side of the sign, they on the other.

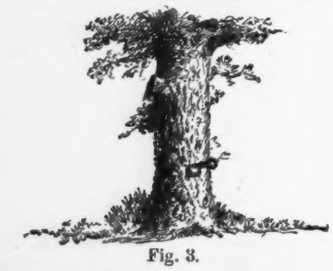


Fig. 3.

Plow Early for Wheat.

If stubble ground is to be put in fall wheat, the plow can not be started too early. If the shocks are taken off the ground as soon as the grain has cured enough for the mow or stack, and the ground is broken at once, the most important step in successful wheat-growing has been taken. The condition of the seed-bed is of more importance in the growing of small grains than of cultivated crops, because making the condition of the ground favorable to the yielding of plant food is impossible after the grain is sown. Of the small grains, fall wheat most demands a well-prepared seed-bed, for oats do not have to pass through our trying winters, while fall rye is more hardy. The seed-bed most favorable to fall wheat is broken moderately deep, but not deeper than the harrow and roller will have effect; thoroughly fined, and as thoroughly compacted. Early plowing makes it possible for us to make such a seed-bed, and with the least expenditure. The weather is dry and hot after harvest, and rapidly dries and hardens the ground; if we delay plowing, the labor is severer, and the ground breaks into hard lumps, difficult to reduce. Though we use the harrow and roller persistently, we do not get the seed-bed in prime condition. The lumps are not crumbled or pulverized, but are divided only. At the end of our labor we have only small clods, but clods nevertheless. The air therefore penetrates the soil, and finishes the drying, hardening process. The light showers that fall are soon dissipated. The clods can not be compacted. Hence the wheat when sown is slow to germinate; the plants find only a scanty supply of food, and their roots have not solid supports to cling to during the winter.

If, however the plowing is done early, the lumps

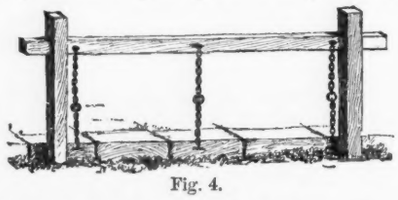


Fig. 4.

will not be so large and many, nor so hard. If the roller is passed over the ground as soon as a strip wide enough is plowed—and not to do this is a very serious omission—the clods are crushed and the ground pressed down, until little of its moisture escapes. Then the harrow and roller can be used advantageously, for the ground is in good condition. The clods are reduced to fine dirt, and fine moist earth can be compacted. Less labor than that put upon ground plowed late, will make the seed-bed fine and compact, and it is moist. The seed germinate readily, the plants have enough food for a vigorous growth, and the strong roots have solid earth to cling to.

By plowing early we also get the aid of sun and air and showers, in putting the seed-bed in good condition, and this aid is substantial help. If the plowing is not done until late, the clods are so hard that the showers and sun and air have little effect upon them, but by plowing early and rolling the ground as fast as plowed, we have the lumps in such condition that showers, air and sun will aid in crumbling them. The disintegrating work of the elements is not small, and its results are all that could be desired. It makes the ground grainy, and also compacts it. In fact, though the ground is plowed early and in good condition, it would be impossible to get the seed-bed in a condition as favorable to the wheat, without the help of the elements, as with them. As the elements charge nothing for their excellent work, and board themselves, we do well to get them at work early, and under conditions that permit much being accomplished.

There are yet other reasons why early plowing is more favorable to the wheat. That the air adds to the fertility of the soil is well known, and plowing the ground early, which exposes a greater and a moist surface, increases the action of the air, over its action on hard, dry ground. Also, in the ground there are seeds of various sorts, which germinate when the ground is plowed. Chess, weeds, grass, etc., will be ready to spring up and crowd the wheat if the ground is plowed late, rapidly

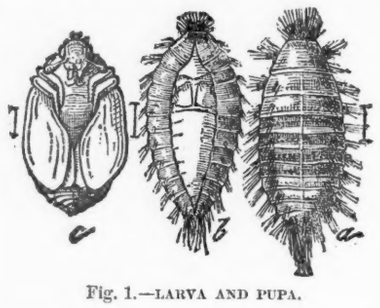


Fig. 1.—LARVA AND PUPA.

prepared, and sown at once. But if the ground is plowed early, these seeds will have germinated before the wheat is sown, and the harrow will destroy the plants. Hence the seed-bed will be clean as well as in good condition; there will not be other growths to rob the growing wheat, or to defile the harvested grain. It may seem difficult to plow as early as is here recommended, but if the summer's work has been kept well in hand, the plow can be started as soon as the grain can be moved from the field. This should be done, if possible.

The Buffalo Carpet Beetle.

In compliance with requests from several subscribers, we publish herewith illustrations of the Carpet Beetle (*Anthrenus Scrophularius*). In figure 1, *a* shows the upper and *b* the lower side of the larva; *c* the pupa. Figure 2 is a view of the beetle in the perfect form. By comparing this with the picture of Lady-Bird in our April number, page 154, it will be seen that the larvæ of the Carpet Beetle are quite unlike those of the other insect. The former are broader, and are covered with bristly brown hairs, wholly unlike the latter.

Various means have been employed for cleaning out the destructive Carpet Beetle, and its larva. One of the safest and most available is to steam them out. Two or three thicknesses of wet cloth are laid over the infested spots and ironed with very hot flat-irons until dry. The hot penetrating steam is very fatal, not only to the insect it is specially intended for, but also to moths or other vermin which may be lurking under the carpet. This must be done very thoroughly to be effective. Gasoline and bisulphide of carbon are also destructive of insect life, but can be safely used only when there are no fires or lights in the house.

Fig. 2.
CARPET BEETLE.

SOWING WHEAT.—Early sowing gives a chance for the plants to become well rooted, the better to endure the winter, but where the Hessian Fly abounds, this is offset by the longer season it is given to do its destructive work. This is a matter that must be governed by the locality. Except upon newly cleared land, wheat should not be sown broadcast. Not only is there a great saving of seed in using a drill, but that deposits the seed at an even depth, and secures a more regular stand.

How to Keep the Family Horse.—II.

A. F. COLWELL, RHODE ISLAND.

The horse best adapted for family use ought certainly be of good weight. A small horse cannot do well the work about an ordinary farm or gentleman's place. To haul wood from the lots in winter, and manure from the barn-cellar in spring, to plow, harrow, etc., in the preparation of land, and to take the "democrat" wagon or carryall, with the family to the city or along the country roads, requires something more than eight or nine hundred pounds of horse-flesh, however willing the animal may be to do all it can. As near eleven hundred pounds as possible should be the rule, for an animal of that weight will be more satisfactory than one lighter. As for blood, there is none perhaps better for general use than the Morgan. Such horses as Hiram Beers drove, when he carried Dr. Wentworth's family to see Barton Cathcart graduate, could hardly be improved on. The late Henry Ward Beecher knew a good horse, and described one well. The one owned by the writer is of Hambletonian stock, and is possessed of nearly all the good qualities usually sought for. Of course, there are hundreds of horses of native stock in New York, and throughout the Central and Western States, that are almost faultless. The two families above are simply mentioned because they are best known.

Among the good points to be noticed in the selection of the family horse, docility and gentleness must be kept well in front. If the women and children are to share in the use and care of the horse, nothing vicious should be tolerated. If sound and previously well cared for, a horse eight, ten, or even twelve years old, may be bought with no fear of disability on account of old age. Mr. John Russell, who recently delivered a series of lectures in Boston, on the care of the horse, said that "old wine, old friends, and old horses"—and by that meaning those from eight to fourteen—"should always be preferred to young ones." The horse does not come to maturity as early as some think, as the record of the trotting horse of America shows. A horse ten years old, that has no defect of body or limb, is practically safe from the ordinary horse diseases. So far as outward appearance, color, etc., are concerned, no general directions can be given, but if the buyer is inexperienced, it is better to go to some reliable dealer, stating what is desired, and the amount of money to be given. An honest horse jockey in some people's minds is an anomaly, but many such have been found by the writer.

STABLING.

Having bought the horse, the consideration of a proper place to keep him is the next phase of the subject. The stable should be large and light, situated on the south side of the barn, so that the window, which should always be at the end of the stable—covered with wire netting—may be opened in the warmer weather without fear of a draft of cold air from the north or east, in order that fresh air may be easily obtained, and also that the little sunshine there is during the short winter days may light up the stable. There is in the minds of good horsemen, no doubt but that small, damp, dark stalls, strongly impregnated with ammonia, as such always are, furnish the producing cause of "pinkeye," and sometimes total blindness, and also lead to complications of throat and lung troubles, for which remedies avail but little as long as these conditions remain. The floor should either be double, with the upper layer of boards set edgewise half an inch apart, or have the planks raised at the front of the stall about two inches, and a line of holes or an open crack at the back, so that the urine will at once run off, and so leave the bedding and floor as dry as possible. In the winter, when the shoes have long, sharp calks, they may catch between the cracks in the boards set edgewise, and cause a lame ankle. The writer prefers good chestnut planks matched, and laid as above. The box stall is extremely comfortable, especially after a long ride, when the horse is warm and sweating freely, as he is likely to, on account of his thick coat of hair in winter. Warmth with good ventilation is conducive to health, and certainly to a good appearance, and the grain given under such conditions yields large returns. In a cold windy night, with the mercury at zero, such a stall with a good bed assures a comfortable rest, and is not beyond the means of any ordinary horse owner.

The hay should come from above and through a closed trough, and never be fed from a rack. The reaching up is very trying to the muscles of the neck and shoulders, and the constant scattering of the hay-seed and chaff into the horse's foretop and mane, is alike irritating to the horse and his owner. If fed through a small opening in the bottom of a closed trough, all this is avoided. The small opening also discourages wasting the hay, a trick which many horses have, and a costly one it is, for many a horse will waste more than he eats. The manger for the grain and other feed should be about eight inches wide and deep, and as long as the stall is wide. A hole or ring in the upper right hand corner, will furnish a place for hitching. A heap of sand or sawdust should always be kept, with which to sprinkle the stable floor. If the horse's feet are dry, standing on wet sand will help them, and when mixed with the urine and manure, it renders the fumes less volatile. A heap of dry earth or swamp muck should be kept under the barn, and every day or two a little thrown on the manure heap, will prevent the heating so common to horse manure, and the consequent odors so fatal to harness polish and carriage varnish. The manure can and should be frequently removed. Sawdust is highly recommended by some horsemen, and it certainly changes the odor in and around the stable, but by others it is said to injure the horse's feet. Sand is to be preferred, but in the writer's experience no injurious results have ever been noticed.

The best bedding is doubtless rye-straw. It has a tougher fiber than oat or wheat straw, lasts longer and dries more readily. Enough should be used to make a good thick bed. If the horse is inclined to eat the bedding—a habit caused by lack of hay—the bedding that has been once dried should be put under the fore-feet and the new straw further back. It is a mistake under any circumstances to use wet straw, simply for economy's sake. Use new, if the old is not dry, till it can be put in the sun, and if more is used than is needed, some can be laid aside and used later. It does not require the exercise of much judgment to understand that, when a horse warm and tired, lies down on a mass of cold, wet and sometimes half decayed straw, rheumatism may naturally result, yet in the winter and rainy weather of spring, the writer has often seen such bedding used. No animal better repays good treatment than the horse, and a good night's sleep on a dry bed is little enough to give after a hard day's work in the field, or a long drive on the road. To those living in the neighborhood of woods, leaves gathered in the fall when they are dry, furnish a good bed, make a valuable addition to the manure heap, and of course cost practically nothing, as the children are always glad to spend part of a day in getting them. But they must be removed every day, as they cannot be dried. If oat or wheat straw is raised on the place, they should, of course, be used, subject to the same conditions as the rye straw.

FEEDING.

It is to be presumed that in the proper feeding of any horse, a fair amount of good, sweet hay is almost a necessity. This need not always be the highest priced, but should never be dirty or musty. Hay containing some clover is relished by most horses, and is good for them, promoting a healthy action of the bowels. Hungarian grass, well cured, is excellent, and if cut before the grain is matured there is nothing better. Oat straw, or oats cut when in the milk, are used by many farmers, but are very apt to be picked over by the horse and the larger part of them wasted. The uneaten part can be used for bedding, but the habit is soon acquired by the horse of picking out of all fodder what he likes best and leaving the rest, hence it is best to feed only what will be eaten up clean. Corn fodder is usually relished, and especially the green corn stalks, from which the ears have been taken for the table. A horse whose appetite is poor, or which is out of condition from hard work or other general causes, will be benefited more by a good feed twice a day of such stalks, than anything the writer has ever seen, and a comparison in weight shows a constant gain during the feeding There is hardly an animal that will not leave the best hay or grain for them, if all three are put in the manger together. Horses are partial to sweets, as most people know, and the carbonaceous matter contained in the juice of the stalks is very fattening.

The grain fed should be varied. A steady use of any particular kind is not good practice. An alternation of corn, whole or cracked, (or on the ear if one has it), Indian meal, oats, and provender can be made so that the horse will not tire of either. Cut hay, with meal or provender, makes a good feed once a day, though there is a disposition on the part of the horse to do less chewing than is sometimes necessary. Oats for the driving horse are reckoned by nearly all horsemen to be the best feed but the eagerness with which some hungry horses eat them, results in their being swallowed whole, and in this state they pass along the alimentary canal undigested, and are very often so found in the manure. Many of the second quality oats have no grain in the hull, and hence, are not easily crushed by the teeth. In both these cases, no possible benefit is derived from them. There is no better way of feeding oats than to grind them coarsely with a varying amount of sound Indian corn, some preferring equal quantities of each, and others two parts oats to one of corn. This coarse crushing renders both more easily digestible, and the corn furnishes the elements lacking in the oats. The so-called "provender" to be bought at the grain stores, consisting of second quality corn and oats, mixed often with middlings or shorts, does not count beside the real article. Cob-meal is fast losing its supporters, and has probably seen its best days. Roots—such as carrots, especially mangolds, or sugar beets, are doubtless nutritious and beneficial, some holding that carrots are worth as much as an equal weight of corn. They should be fed judiciously when available. The amount of grain to be fed should vary from six to ten quarts, according to the work done and the requirements of the horse. The idea prevalent among many horse owners, that a large animal needs an amount of feed proportional to his size and weight, is erroneous. The writer's horse, weighing eleven hundred and ten, keeps fatter, and in better condition every way, on six quarts of grain a day, and seventy pounds of hay a week, than does the horse of a friend weighing only eight hundred, on a larger quantity of both.

All the fresh water desired by the horse should be given, except when too warm, but always before eating. By the examination of a horse's receiving stomach, it is shown to be much too small to hold an ordinary meal of grain and hay, and a pail or more of water after it. Hence when the water enters, some of the food must be forced out undigested. A French horseman, in order to prove this point to some doubting friends, fed three horses with a kind of coarse bean, of which they were fond, and as soon afterward as they would drink, gave them all they wished. In less than half an hour afterward they were killed, and some of the beans, whole, partly chewed, and finely ground were found in the intestines, fifteen feet from the stomach, where they had been carried by the water. It is a common practice for some good horsemen, at night, when they think the horse has finished eating, to go to the barn and give a pail of water, which will almost invariably be taken by the horse. Many a case of colic, fatal in some cases, had its origin, pure and simple, in the water given after the supper. No water should ever be given in less than an hour after the meal is ended, and two hours are twice as good an occasion. It is better, when possible, to feed the hay before the grain, for if either is to enter the bowels undigested, it is

much better to have hay there. A lump of rock salt should, of course, be a part of the stable outfit.

Before the morning meal, and, unless sweaty, before that of the evening, the horse should be well groomed. With a curry comb, card, or corn-broom brush, rub the hair the wrong way till the dirt and dandruff are started from the skin, then with a brush or bunch of split cane, rub till the glistening of the hair shows that the dirt is removed. An old woolen cloth or a piece of old carpet will complete the operation. The use of an ordinary house broom, which has been about half worn out, will be found very efficacious in cleaning the legs, and in fact the whole body. The mane and tail should be occasionally washed out, and of course, brushed out daily. The tail ought always to be tied up where there is mud, or melted ice, or snow on the ground. Rubber coverings, in cold stormy weather, except to a horse that is not driven rapidly, are comfortable, but they induce sweating, and so are best for horses that are not pushed as to speed. If the legs are wiped dry whenever the horse comes in wet, and especially when there is snow or ice-water, the common disease, scratches, will have less chance of making its appearance. The horse's feet should be cleaned whenever he stands all day in his stall, and no manure should be allowed to accumulate on which he can stand. Absolute cleanliness is the price of healthy feet, a fact which many learn too late, but which all good horse-owners entirely agree upon.

SHOEING.

The legs and feet of the horse are his weakest points and nothing is more important to their well being than good shoeing. That the ordinary blacksmith or horse-shoer knows absolutely nothing of the structure of the foot, can be soon ascertained by any one who will ask the ordinary workman a half a dozen questions. Mr. Russell, in the lecture before spoken of, describes the English methods, which he made the subject of personal observation in their best shops, as "utterly irrational." The shoes have a thick wide web, with high calks at the heels only, lifting the horse's feet as some of the fashionable so called French heels lift the over-dressed woman. In both cases, easy or comfortable travelling is out of the question. The fact that some English horses, whose names are known all over the world, and whose value is reckoned by the thousands of pounds, are shod in this senseless way, shows plainly that their owners trust too blindly to those who do not know their business.

In America we have, perhaps, as good shoeing as the world affords, because horse owners have compelled the horse-shoers to do as they wished. We have light, strong, well made shoes, freedom from the high calks, except in icy weather, when they are necessary. Our chief fault is having the shoe fitted hot, or burnt into the hoof instead of having it put on absolutely cold, throughout the whole process of shoeing. If any man who buys his shoes ready made, were to go into a store and try on a pair that did not fit him at all, and should be told by the attending salesman that the shoes were "just right," and should insist on his buying them on the plea that "the foot would finally adapt itself to the shape of the shoe," the man would think him a lunatic, and seek another place at once, where the foot was of the first importance, and a shoe would be found to fit. But the first is in reality what is done when the horse is taken to be shod. A set of shoes is found with which it is decided to fit the foot, or rather to make the foot fit, and then the farce or tragedy begins. After some heating, and pounding, and pressing the almost red-hot shoe against the already brittle hoof, after cutting away the heels, and trimming the frog as much as possibly can be done, the shoe is nailed on with eight large nails—six are always enough—and the horse is led away to suffer till the next shoeing.

The intelligent owner of a good horse should insist on the shoes being fitted cold, and of such size and shape as exactly fit the foot, that the heel is left open its natural width, and kept low as the rest of the foot; that the frog be never cut, only trimmed where the edges are ragged, and the shape and condition of the foot remain as nearly natural as possible. If these conditions were insisted on, different work and workmen would be the result, and instead of the present stand-still for half a century or more, we should see improvement in the care of horses' feet, for nature has done her part, and needs only to have man help her withstand the action of pavements and stony roads. What we need is a smith who will shoe a horse—as an artist once replied when asked, by an ignorant man, how he mixed his colors—"with brains, sir." Let the horse owners, who read the *American Agriculturist*, carry on the crusade that has been begun, and a new era in the welfare of the family horse will be opened, and a new class of workmen, who know a little more than to weld two pieces of iron, or to drive a nail, will take the place of the bunglers of to-day. A false idea of economy should not result in leaving the shoes on as long as they will stay. Once a month the feet should be examined by the smith, and his judgment should settle the question of new shoes. If he be a good, reliable man, who sees in the interest of his customer his own, he will not make unnecessary expense.

CLIPPING THE HORSE.

"Should the family horse be clipped?" we hear some exclaim in surprise and horror, who, perhaps, have yielded a willing assent to all previous conditions, but we reply "Yes," in all candor and sincerity. Not in November or December, just for "looks" or "style," and no account taken of the days and nights when the mercury stands at zero. We do not wonder that in Ohio—that State of good horses—it is made an offense against statute law, to clip a horse during the winter months, but in the spring, say the first or second week in April, or if the weather is mild and open, and the horse has began to shed freely, the last week in March may do. Then to take off the old coat, to save all the currying and rubbing, to save the constant brushing of the clothes and carriage robes, to free them from the flying hairs, to stop at once all the itching of the horse, as the new hair begins to start, this is a mercy alike to the horse and his owner. That the horse is really more comfortable, no one can doubt who gives it a thought, and it is a bit of personal experience which the writer would recommend to all horse owners, and especially to those who have no hostler or man servant to whom can be left the anything but agreeable task of cleaning a shedding horse. In three weeks the new hair will all be out, and a cleaner, sleeker animal it will be hard to find. The danger of taking cold is almost nothing, if ordinary precautions are taken.

BLANKETING.

The question of blanketing the horse has been a subject of controversy for several years. So far as the winter exposure goes, the blanket has been beneficial, and is steadily used, a thick, warm one for winter, a lighter one for spring and autumn, and a burlap covering for use during the day, while standing in the stall, as a protection against flies. It is urged by some, that use of the blanket makes the horse tender, and more liable to take cold, and also that nature will take care of the heat of the animal by furnishing an extra thick coat of hair, but we must remember that the horse, shut up in a barn more or less warm, does not conform to the same conditions as the wild animal, and that since the horse's appearance—a smooth, sleek coat, is always gratifying to the owner—he must be careful that the horse is kept comfortable, without calling on nature more than is necessary. What would apply to horses used in the Maine pine forests to haul logs, would not be proper for the horse kept for family use.

DOCTORING.

Horses are always liable to be sick, and some general directions would not, perhaps, be out of place here. In winter, colds are quite common throughout the Eastern and Middle States. If difficulty of breathing is noticed, with running at the nose, see, first of all, that there are no draughts of cold air striking him; put on an extra blanket; give a warm bran mash, and ten drops of tincture aconite, once in two hours. If the cold take the form of a cough, there is nothing better than a tablespoonfull of ground lobelia and ginger, mixed in equal parts, put in the bran mash, and it will be taken without trouble. Where the horse becomes suddenly lame, the first step is to ascertain whether or not it is the fault of the shoeing, as it very often is. In such a case, pull off the shoe, give the foot a rest of a day, and then put it on rightly. If it be due to a sprain, bathe in hot water, and rub dry. The various liniments are not efficacious as a rule, and generally result in taking off the hair. It is better to call a well-known veterinary physician, than to risk the loss of a valuable animal. The horse may die, of course, in spite of all that is done, but it will be a satisfaction in case of his death to feel that all has been done that was possible.

Raising Turkeys.

The common turkey is a native of North America. Its name arose from the confusion that at first existed relative to the identity of the bird with the Guinea fowl, which is known as a native of Turkey. There is no better place for keeping turkeys than a large, open shed. It should be so constructed as to protect the fowls from the inclemency of the weather, and especially from wet, which plays sad havoc with them. Have high perches, but do not neglect to make a broad ladder for them to walk up to roost. It might be asked why a ladder, when the turkey in its wild state roosts on trees and other high places? When we fatten fowls in the domesticated state, they become heavier than when wild, and the weight is too much for the strength of their wings. While enjoying their liberty, they take exercise which preserves them from "aldermanic proportions." Avoid roosting on trees; many a flock has been wiped out of existence in consequence of this. There is no surer way to introduce roup among your fowls than in allowing this practice.

The female begins to lay in spring. As a rule, she will make her nest in some obscure place, where she will drop an egg daily, or every other day, until as high as twenty eggs are laid, according to the maturity of the bird. A turkey hen is a very persistent sitter, and will often half starve before she will leave the nest. If kept in the house all the morning, which is the time they lay, the possibility of hiding their eggs is avoided. In the second layings, the number of eggs rarely exceed thirteen. Incubation varies from twenty-eight to thirty-two days. Young turkey chicks should be removed from the nest shortly after they are hatched.

In feeding poults about two or three months old, such boiled herbs as wild succory, turnip-tops, and cabbage sprouts, are suitable. Boiled potato skins and a few potatoes may be given, mixed with beans, oats, barley or buckwheat. When six months old, boiled potatoes, mashed and mixed with meal, and fed fresh in a clean vessel, continued for about a month morning and evening, will develop a good weight, and fit them for the market. If the early market is to be met, do not fail to keep the fowls a greater portion of their time in darkness, and curtail as much of their exercise as possible. Turkey poults must be protected against cold or damp weather, as well as intense sunshine. In case of rain, they should be housed at once. The turkey raiser must constantly keep his eyes open, and never neglect the slightest act of kindness or cleanliness. A great many turkeys die annually for want of these.

AMERICAN BREEDS OF FOWLS.—The Plymouth Rocks are regular, every-day fowls, good layers, give brown eggs, are good mothers, and steady sitters. They breed very true, are quick in growing, make excellent broilers, fatten readily, so that they are good in autumn for the table, and make excellent capons. The Wyandottes are a speckled breed, and, when bred true, are very handsome. They are more fashionable now than the former, and well-bred ones are in good demand at paying prices.

Aquatics—Water Lilies.

Probably no public gardening ever afforded pleasure to so many people as did the planting of water lilies and other aquatic plants, last year, in the various squares and small parks scattered throughout New York City. So popular was this, that it has been repeated the present season. These squares are supplied with fountains, but as the present aquaduct does not supply sufficient water to allow the fountains to play, save occasionally, their spacious basins are put to good use by converting them into outdoor aquaria, and planting them with showy aquatic plants. These plants attract much attention on account of their great beauty, and because they are entirely new to most city people. Very few children born and bred in the city have ever seen a pond studded with the beautiful native White Water Lily, than which nothing is more charming. Not only are these native *Nymphæas* grown in these public squares, but exotic species of different colors, which, if more showy, are not equal to our *Nymphæa odorata* in the purity of its whiteness, and exquisite fragrance. Among others are: *N. gigantea*, from Australia, with flowers six or seven inches across, the beautiful blue color of the petals contrasting finely with the golden color of the anthers. *N. stellata*, from Africa, is another blue species, which is delicately scented, and flowers very freely. *N. Zanzibarensis*, from the island the name of which it bears. Its flowers are of an intense blue; its anthers of a shade of violet. This is regarded as one of the finest of all water lilies. *N. Lotus*, with red or red and white flowers. This is from Africa, and is the plant held sacred by the ancient Egyptians, but not the one the fruit of which was eaten by the lotus eaters, which was a kind of jujube. *N. scutifolia*, the shield-leaved Water Lily, is a bright blue-flowered, sweet-scented species from the Cape of Good Hope. There are several others in cultivation, but these are the principal kinds found outside of the collections.

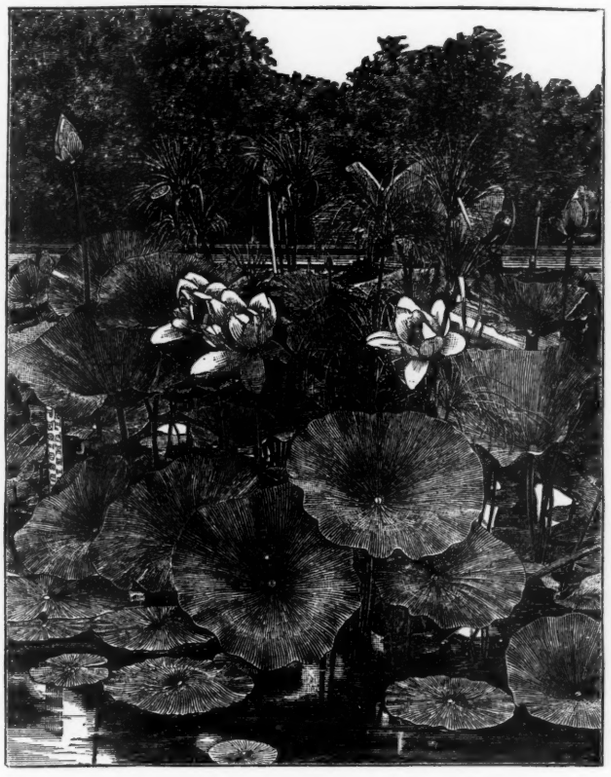


Fig. 1.—EGYPTIAN SACRED BEAN (*Nelumbium speciosum*).

Towering far above the Water Lilies, and the largest plants in these basins, are the Sacred Beans, belonging to the same family with the lilies, but to a different genus. *Nelumbium*, from "nelumbo," an East Indian name for the plant. There are two species, one *N. luteum* (yellow), a native of the United States, the other *N. speciosum* (showy), a native of most Oriental countries. Our native species is found in many ponds and lakes in the Southern and Southwestern States. Its principal Northern localities are in the Connecticut River, in Lake Ontario, in some ponds in New Jersey, and in the Delaware near Philadelphia. The circular leaves, sometimes two feet across, are raised high out of the water, and the flowers appear among them, like enormous yellow tulips, a foot in diameter. The fruit is a large receptacle, in the surface of which the acorn-like seeds are plunged, "like plums in a pudding." The seeds have a sweet eatable kernel, and are known as "water chinquapins." These nuts and the large tubers, resembling sweet potatoes, formed an important part of the food of the Indians, who, it is said, carried the seeds from place to place, and threw them into the waters, that a supply might be kept up. The Oriental species, *N. speciosum*, is similar in size to the other, but the petals are white, tipped with rose-color, and the flowers are very fragrant. This species is represented in figure 1. The grandest of all water plants, *Victoria Regia*, the Lily of the Amazon, is shown in figure 2, from a photograph taken in the Victoria house of Mr. E. D. Sturtevant, of Bordentown, N.J. This requires a tank twenty to thirty feet in diameter, and to be sheltered from the weather. The leaves are about six feet in diameter, and the flowers from twelve to sixteen inches across. The flowers are white and pink, lasting but two days, and very fragrant. It is an annual, requiring to be raised from the seed each year. We have seen this gigantic flower successfully grown with merely the shelter of a tent over the tank. Those who have a natural supply of water upon their grounds, are fortunate. If ever so small, they can cultivate a large number of fine aquatics—all we have mentioned, save the Victoria, and many others that we cannot now enumerate. Even if there is no natural water supply, many of the fine ones may be cultivated by sinking a tub, made by cutting apart a large cask. By setting this with its edge even with the surface of the soil, suitable plants may be used so as to hide it. There should be a lot of good turfy loam in the bottom, in which to plant the roots. The roots of tender kinds may be set in baskets of such soil, so that they may be lifted out and removed to the greenhouse or cellar for the winter. We have had the pink variety of our native white Water Lily growing in any available cask, sunk in the ground, as described. The leaves so completely cover the surface of the water, that there is but little evaporation, the loss by which is mainly made up by the rains. Several frogs appear to enjoy the company of the lilies. Gold-fish may also be kept in lily tanks. They help to keep the water pure, by eating the algæ which form on the surface,

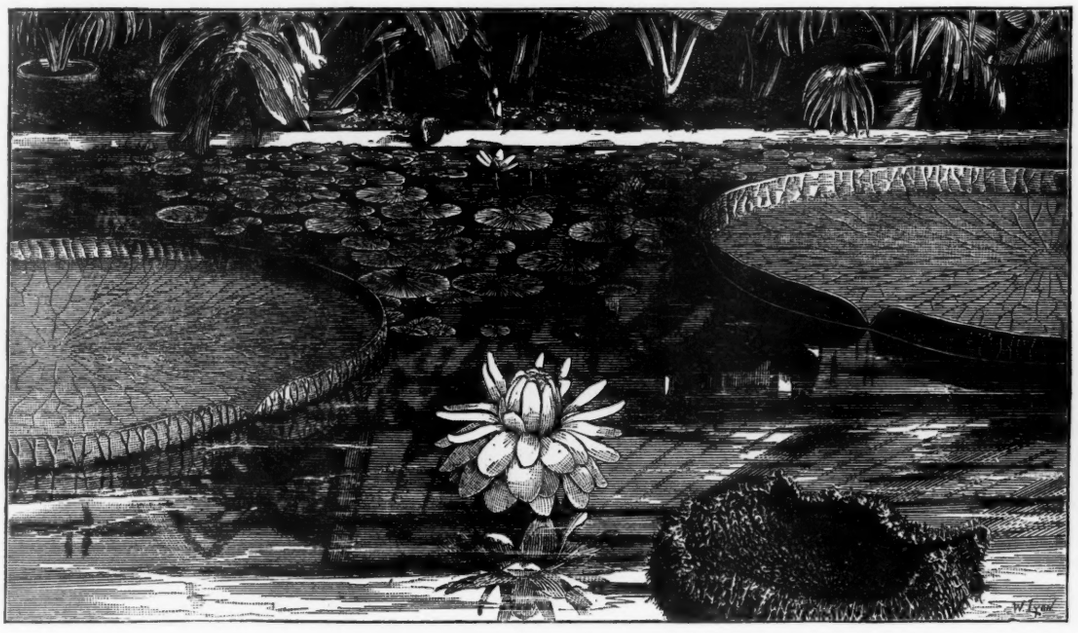


Fig. 2.—AMAZON LILY (*Victoria Regia*).

Besides the fine species of *Nymphæa* already named, there are others available for those who wish to cultivate these desirable plants. For example : *N. rubra*, probably a form of *N. Lotus*, *N. dentata*, a very large flower, pure white, form of *N. Lotos*, with very handsome foliage ; and notably the Duke of Devonshire's Water Lily, *Nymphæa Devoniensis*. This truly magnificent Water Lily is a garden hybrid between *Nymphæa Lotos* and *N. rubra*. As seen in the engraving, figure 3, its leaves are ample, and its most important character, its abundant flowering is also indicated. Indeed, this variety is noted not only for the profusion of its flowers, but for its long continued season of bloom, it producing its large, brilliant red flowers throughout the entire season.

Fig. 3.—NYMPHÆA DEVONIENSIS.

There are several other aquatic plants, not water lilies, desirable in such places, among which are our Common Pickerel weed, *Pontederia cordata* and the more desirable *Pontederia crassipes*, *Limnocharis Humboldii*, the bright yellow flowers of which bloom continuously throughout the summer, is a most excellent plant, and the Cape Water Weed, *Aponogeton distachyon*, with pure white, fragrant flowers, should be grown for its perfume. A plant of this is grown for its odor in our greenhouse with great success, in a keg. In any out-door tank, where it does not freeze severely, it is hardy.

In figure 4 we give a view of an out-door aquarium in the grounds of Mr. Sturtevant, which shows how much can be done in the cultivation of aquatic plants, with only a small supply of water. The true aquatics, like water lilies, are grown in sunken tubs, a large one in the center for the stately Nelumbiums, while the surrounding smaller tubs are devoted to the various Nymphæas and other truly aquatic plants. The spaces between the tubs being filled with peaty soil, afford excellent places for the growth of bog plants, many of which are of great beauty, though rarely seen in gardens, for the want of a suitable soil for them. The moisture-loving ferns flourish in great luxuriance in such a locality, and many other plants which cannot be grown in dry soil, will find a congenial home in such a place. Water need only be supplied to the central tank, or tub, from which it may be distributed to the surrounding smaller casks. The quantity of water required to supply the loss by evaporation, leakage, etc., is surprisingly small, and the success of Mr. Sturtevant should encourage amateurs who wish to engage in the cultivation of aquatic plants.

Fig. 4.—AN OUT-DOOR AQUARIUM.

Preparing for Winter—Ivies.

Many who really love plants, cannot give the time required in caring for flowering plants, which, unless they have a proper exposure and are carefully nursed, are apt to be disappointing. Ivy, on the contrary, with its cheerful green, and the ease with which it is managed, is within the reach of every one, and affords a most effective ornament for the room, whether its furnishing be humble or costly. By Ivy, we refer to the evergreen climber *Hedera*, commonly called English or Irish Ivy, of which the varieties are numerous, and some of them often grown upon the walls of brick or stone buildings, especially where they are not exposed to the sun in winter. In the Northern States, the ivy is of uncertain duration, an unusually severe winter often destroying it, after it has been established for several years. In the latitude of Washington it succeeds finely, and from there southward. Very fine specimens are to be seen growing upon some of the old brick houses in Maryland and Virginia.

To get a start with ivy, to be grown indoors, it would have been better to have begun in the spring, but better now than not at all. If a friend has Ivy established in the open air, he will, no doubt, give some cuttings for the asking. Select good, thrifty branches, a foot or two in length, or even longer, those that have made a straight and healthy growth being preferred to those that have become stunted or checked in any manner. In the absence of such a source of supply, it will be necessary to go to a nursery, or a florist's establishment, where a small plant in a pot may be purchased for a moderate sum.

There are many varieties of ivy, differing in the size of the leaves, and in the rapidity of their growth. If there is any choice at such places, select the most rapid growing kind.

If upon turning the ball out of the pot, the roots appear to be crowded, repot in a pot a little larger, using rich garden soil, without manure. If starting with cuttings instead of rooted plants, place them in a jar, or bottle of water, cutting off a few of the lowermost leaves. When roots have formed the cuttings may be potted. Ivy should have good rich soil, but no fresh or stimulating manures, and be supplied with an abundance of water, which, however, should not stand about the roots ; this may be prevented by having the pots well drained. Ivy, when well established, grows rapidly, and may be trained in a great variety of forms. As a basket plant, with some branches trained around the handles, and others drooping over the edges and twined around the body of the basket, it forms a beautiful object. Trained around the casing of the window, it forms a charming framing. It may be carried around the cornice of the room, over the archway of folding doors, over picture frames and mirrors. Indeed, with a few pots of this easily managed plant, a room may be converted into a bright and cheerful "greenery," more effectively than in any other manner.

Observe one thing. Some years ago, a paper published as the secret of a lady who was celebrated for the beauty of her ivy, that she went over the leaves singly, with her thumb and finger slightly smeared with olive oil. Don't do it ! It may improve the appearance of the leaves for a short time, but if this is continued, it will certainly ruin the plant. But it will be well, once a week to wash the leaves with strong suds of castile soap, applied with a sponge, or a soft cloth. The amount of dust that will be thus removed will be astonishing. In doing this, look out for the first appearance of scale insects, which are the chief insect enemies of ivy ; they appear upon the leaves, and on the newly grown stems, and may be readily removed by using a soft pine stick. In training the ivy, it is well to stretch a small copper wire, and tie the stems to that, rather than attach them directly to the woodwork. Trained to wires, the plants may be readily removed, should it be desirable to take them out of doors in summer. When taken out, place them where they will have shade in the hottest part of the day, and do not neglect to give water when the soil is dry.

Lilacs, New and Old.

Among our flowering shrubs none is more popular than the Lilac ; that it has long been held in high esteem, is shown by the fact that in the oldest gardens, if there are no other ornamental shrubs, there is sure to be a clump of Lilacs. Though introduced into Europe from Persia about three centuries ago, it still retains its popularity, especially in France ; in Paris it is extensively cultivated in public and private gardens, and in the flower marts its blossoms are sold in spring in greater numbers than any others, save those of the Violet. The generic name of Lilac is *Syringa*, from its native oriental name, *Sirinx*, a pipe, its stems having long been used for making musical pipes. The stems of the Mock Orange (*Philadelphus*) being used for the same purpose, the same name was applied to that in the East also, and two Syringas were in cultivation, until the name of the latter was changed to *Philadelphus*. Yet the name Syringa is retained as one of the English garden names for *Philadelphus*.

Fig. 1.—ROUEN LILAC.

The first species of Lilac introduced was *Syringa vulgaris*, which was brought from Persia, together with its common name, the plant being known in that country as *Lilac* or *Lilag*. The plant is also a native of Europe, being found in Hungary in great abundance. About a century after the introduction of the common Lilac, there was introduced, also from Persia, the "Persian Lilac," *Syringa Persica*, a much smaller plant, with smaller and different leaves. The flowers of both these species are of that shade of purple to which the plant has given its name. Both species have a white-flowered variety. The common Lilac is too well known to need a description. Though usually

eight or ten feet high, it has, in good soil, reached twenty feet and more. Ordinarily it throws up an abundance of suckers, forming a dense mass of stems; by clearing these away, it may be kept in a tree form, though its tendency to produce suckers is not overcome, and they must be removed annually, if the tree form is to be preserved.

Until about the beginning of the present century, the common and the Persian Lilacs, and their white varieties, were all the kinds in cultivation. In 1795 there was introduced the "Siberian," or "Rouen Lilac" (*S. Rothomayensis*), which was supposed to be a native of Siberia, but is now regarded as a hybrid between the two older species, *S. vulgaris* and *S. Persica*, its characteristics being intermediate between the two. It is noted for its vigor of growth, and abundant flowering, the trusses often being of enormous size. Figure 1 gives the appearance of a terminal shoot of this variety, which is, by many, regarded as the finest of all lilacs. There is much confusion in the books as to this variety, it being called *S. Chinensis*, *S. dubia*, etc. *S. Rothomayensis*, being the oldest name, is the one it should bear. It is an awkward name, but may be avoided in common use, by calling it the "Rouen Lilac." Seedlings of the common lilac (*S. vulgaris*), have been produced in great numbers, the catalogues giving over twenty-five named varieties. One of the finest of these is "Charles X," figure 2, a large, rapid growing French variety, with shining foliage and very dark-colored flowers, in large trusses. Messrs. Ellwanger & Barry have produced a number of fine seedlings, one of which, var. *cærulea superba*, has flowers of a clear blue color, in a very large truss. *Syringa Emodi*, a native of Mt. Emodus, in the Himalayas, is a species introduced in 1840. Figure 3 shows the large panicle of notably long flowers, which are of a very delicate purple or often white. Highly esteemed. The Japanese Lilac (*S. Japonica*), sometimes called *S. Amurensis*, has a dense cluster of creamy-white flowers. This blooms later, and is a handsome shrub. The Persian Lilac (*S. Persica*) has also produced several varieties, the most notable of which is the "Cut-leaved," var. *laciniata*. In this, as shown in figure 4, the leaves present a great variety of forms—from entire to pinnately divided, on the same branch.

Lilacs are easily propagated, the general method is by removing the suckers, and planting them in

Fig. 2.—LILAC CHARLES X.

good soil. These rare kinds are often grafted, using for stocks suckers of the common sort, that have been rooted, or small seedling plants. Of course, new varieties are raised from seeds, which are sometimes freely produced. The French florists for a long time produced white lilacs, which they offered nearly every month in the year, but kept their methods secret. It was at first supposed that they used the white varieties for forcing, but any of the dark varieties when forced produce perfectly white flowers. Large numbers of these forced lilacs were sent to England, and the florists found the business very profitable. But at last the secret was published. Good clumps of the common purple lilac were potted early in autumn, and kept cool until they were well established. The house in which they were forced was perfectly dark, and the temperature increased until it reached eighty and nearly ninety degrees, supplying water

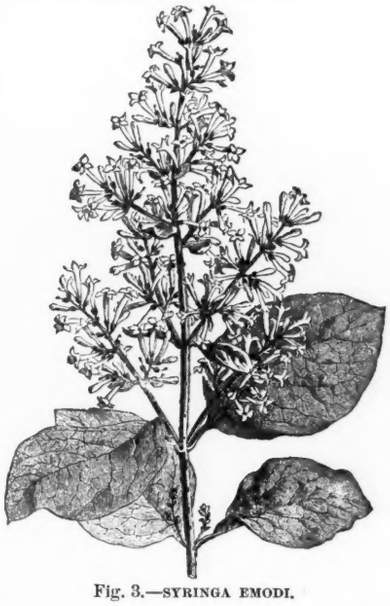


Fig. 3.—SYRINGA EMODI.

freely to keep up a humid atmosphere. Later, it was discovered that white lilacs could be produced without the aid of darkness. The plants if placed in a house in full light, the temperature being kept at from sixty-eight to seventy-two degrees, with the air abundantly humid, will produce white flowers. The idea being that in this heat and moist atmosphere, the flowers are developed so rapidly that the coloring matter has not time to be produced. The English florists no longer depend upon their neighbors for their forced lilacs, but force them at home very extensively. They are forced to some extent in this country, our florists employing them largely for bouquets and other floral work. It is stated upon good authority that if the plants are well established in pots, and placed in the window of a warm living room, they will bloom and produce white flowers. The variety "Charles X," one of the darkest colored of all, when forced, is of the purest white of all.

STRAWBERRIES NEXT SPRING.—If our readers have followed the advice given earlier in the season, and layered strawberries in small pots, they have the plants for setting a bed that will give a fair crop of fruit next spring. If this were not done, one must purchase pot-layered plants with which to set his bed, or else wait until the following year for a crop. The principal dealers now offer pot-layered plants at a moderate price, when we consider the labor involved in producing them. The best results are to be had from earlier planting—the last of July or any time in August; still, if planted early this month, and given good care, a fair crop may be expected. The soil should be well enriched with thoroughly decomposed stable manure, or in the absence of this, use a good dressing of fine bone; in either case, let it be thoroughly worked into the soil. Set the pot-layered plants in rows two feet apart, and the plants every fifteen inches in the rows. In planting, press the soil firmly against the plant with the foot. Keep the bed clear of weeds during the rest of the growing season, and as fast as runners are produced, pinch them off to favor the formation of strong, stocky stools. When permanent cold weather sets in, cover the plants and the entire bed with straw, salt hay, leaves, or coarse material, two inches deep.

Cultivation of the Sunflower.

Mr. A. M. Witham, York Co., Pa., in contemplating the cultivation of the Sunflower, sends us a series of questions, which show that he proposes to enter upon the project intelligently, and with a full knowledge of what has been done. The nature of his more important questions may be inferred from our replies: We do not know that the Sunflower is cultivated anywhere in this country upon a very extended scale. The headquarters of the crop are in Southern Russia. In France, where great attention is given to all oil-producing crops, the Sunflower is not held in high favor. First, because it requires the richest of soils; second, on account of the difficulty of preventing the birds from carrying off a large share of the crop; third, on account of the small yield per acre, and fourth, on account of the inferior quality of the oil produced from the seed.

As to yield, the average product of the seeds per acre is about five hundred pounds, and these contain about fifteen per cent. of oil. The only commercial use of the seeds is for expressing the oil, which is used for burning, soap-making, etc. A small quantity of the seed is used as a dietetic food for horses, and as poultry food. The supply for these uses is generally home-raised, and does not enter into commerce. The chief obstacle to the profitable culture of Sunflower seeds in this country, is one not mentioned in the French objections above stated, namely: that we have in cotton seed, formerly nearly a waste product, and one which, being produced incidentally, must always be cheap, a material which produces a vastly better oil than Sunflower, and one with which no crop, grown especially for its oil, can profitably compete. Besides these obstacles to the profitable culture of the Sunflower in this country, there remains the fact that even a fair yield can be attained only upon the richest soils, and as it is one of the most exhaustive of all known crops, the stems containing an enormous amount of potash, which is the constituent our soils most need, our farmers can not afford to grow the Sunflower, save in a small way for domestic use. We cannot see a single favorable feature in Sunflower culture for the American farmer. It is a case of "Don't."

The improved methods of expressing the oil from cotton seed, have given us a product of

Fig. 4.—CUT-LEAVED LILAC.

superior quality, which can be used for innumerable purposes, and is a good substitute for the more expensive oils formerly employed. Some of our correspondents recommend cotton-seed oil for culinary purposes, and consider it fully equal to the imported, and often impure olive oil,

THE HOUSEHOLD

Bank Accounts for Children.

FARMER'S WIFE.

How am I to provide a bank account for my children, when I have so scanty a one of my own? I hear some fond parent exclaim. By teaching your children to earn money. Of course it is not always possible for them to save it when earned; that is, there are cases where it must be applied to meet the necessities of life at once. Children cannot begin too early to earn a little money, and there are an infinite number of ways in which they can gain a few cents, giving them an inexpressible feeling of pride and ownership in having something that is truly their own. It will serve as an incentive to greater industry, and the habits they will thus acquire will be of vastly more benefit than the money they save.

One of my own boys in early childhood evinced a strong propensity to extravagance, and although our means were not such as to permit any great and foolish outlay of small coins by the lad, still he managed to spend, in the most trifling way, all the cents and dimes given him by fond grandparents and uncles. One Christmas I gave him a bright tin bank, promising him five cents for every half dollar he accumulated. When his savings had reached the sum of $5 (and they were long in so doing), I put the sum in a savings bank, giving him a bank book of his own. From that time I noticed a decided change in his character. He never became miserly, but grew up an earnest, prudent boy, soon devising ways and means of adding to his little store. If your children are obliged to perform such duties as cutting wood, screening ashes, and the like, they will have more energy and ambition if you pay them a few cents per week, or better still, let them work by "contract."

When a girl on my father's farm, I remember that there were two tasks that my natural strong sense of duty could hardly have brought me to undertake, had it not been for the reward promised, viz., weeding the onion beds, and picking the windfallen and wormy apples for the pigs. I was devoted to an out-door life so much that all in-door tasks and accomplishments were sadly neglected, to the great benefit of my somewhat delicate health; but I could never have found the moral courage to undertake the eradication of the dreadful "bunch-grass," with its tenacious roots and tender tops, had I not known that a tiny, old-fashioned three-

Fig. 1.—ORNAMENTED SQUARE WICKER BASKET.

cent piece would be mine for each bed weeded. I think all the children who read the *American Agriculturist* will appreciate the feeling.

PINEAPPLE CAKE.—Beat one cupful of butter with two of sugar until they cream: add the well-beaten yolks of five eggs, half a cup of milk, and the beaten whites of the eggs alternately with three and a half cups of flour, through which have been sifted two teaspoonsfuls of baking powder. Bake in jelly tins. Grate a pineapple with a coarse grater; pour off some of the juice and add a cupful of dessicated cocoanut, sweeten with pulverized sugar and spread between the layers. Cover with a plain icing and spread thickly with the cocoanut.

A Pretty Handkerchief Case.

The neat little case shown in our engraving is made of two shades of yellow satin ribbon. It requires three-quarters of a yard of the light, and one yard and a half of the dark shade. The ribbons are neatly overhanded together, to within seven and a half inches from the ends. These ends are left loose, to be tied in a bow. The ribbons are then folded up, to form a pocket, which is to be lined

HANDSOME HANDKERCHIEF CASE.

with plain satin, placing a layer of cotton between the lining and the cover. The cotton should be scented freely with sachet powder. A few flowers, or any other design preferred, may be painted on the front, as seen in the illustration given above.

Paper Baskets.

The small wicker baskets made for holding newspapers are about the handiest of all paper racks, and when trimmed up prettily, are quite an addition to the sitting-room, in way of decoration. The basket shown in figure 1 has pads made of muslin to fit the sides. These are covered on the outside with dark-red plush, which is decorated with daisies and grasses, worked in crewels. A cord sewed on finishes the edge, and a bow is tied on each side of the handle. The basket shown in figure 2 also has pads of the muslin fitted on it—these are covered with peacock-blue plush, and finished on the bottom with heavy fringe. A large bow is tied in the center of the handle.

Late Summer Fashions.

White costumes may now be said to be the "rage;" but by this we do not mean the chalky white dresses that will "wash," but rather the stylish wools, soft clinging silks, and fascinating, although unserviceable, crêpes, and tissues. The latter are so airy and fairy-like, that they are the desire of every young girl's heart, but for a useful dress that can be worn quite late in the fall, the white flannels and canvas cloths are much the best choice. These are made up with as little weight as possible, with plaited skirts, or else are unlined and worn over a petticoat of cotton satteen. The top of the skirt is finished by a yoke, which extends to the sides only, and there meets the drawing string, which gathers the fullness in the back. Gold, silver or copper braid is sometimes used to ornament the collar, cuffs, and basque tails of these gowns.

Young misses wear white muslins with pin-head dots of embroidery, made over pink, blue or green silk, or satteen slips; or they may be all white, brightened by a sash of any desired color. Sashes are, indeed, once more high in favor, with ladies as well as misses and children, and appear on all kinds of dresses. Moire or striped gros-grain ribbon, is preferred to satin.

The new departure in sleeves is gaining ground rapidly in spite of the fact that they are rarely as becoming as the tight coat sleeves. They are very full and of infinite variety. Some are straight and gathered into a cuff; others resemble the "leg-of-mutton" style of our grandmothers, only on a smaller scale; while others are puffed at the shoulder, slashed, or, for the house, sometimes left open in the back, showing the arms.

Black Surah suits are lightened, and made more dressy by a pointed vest of white watered silk. For the skirts of all light summer silks, a fashionable garniture is narrow flounces, pinked on the edges. These may entirely surround the skirt or be used only where the drapery falls apart. The flounce is sometimes underlined with a pinked out border of another and contrasting color, the effect of which is exceedingly good. Round, belted waists, shirred at the neck and waist line, are liked for thin dresses without lining. These have but one dart in front, and that quite far back. A pretty finish for neck and wrists, is a little puff of white mull, drawn up with white ribbon of the narrowest width, which is tied in a bunch of loops on the inside seam at the hand. In purchasing materials for autumn wear, plain velvet, *faille francaise* in silk, and all wool cloths, are the safest selection at this season.

A long cloak shown for traveling, riding, or for stormy weather, and which will be appreciated by elderly ladies, is an exact copy of the style worn by Irish peasant women. These garments are made either of twilled silk or camels' hair, and lined with India silk. Six or seven breadths of silk are used, gathered into a standing collar of velvet, and falling to the floor, completely enveloping the wearer. They have no sleeves, but the front breadths are doubled from the foot up, and the arms pass out between the doubled folds. A ribbon belt is tacked inside to the back seams which adjusts it slightly to the figure. Light shawls for the piazza or the lawn are formed of small squares of Chinese crêpe, with deep-netted fringe; or if warmth is required, India chuddah squares are delightful, and in scarlet and blue give a pretty touch of color to light costumes. Worsted shawls are now made of zephyr wool and silk crocheted together. Cool, comfortable dressing sacques which are nice enough to wear to breakfast at home, are made of batiste, linen lawn, or percale, with tiny specks or hair stripes of color. They are made with adjusted backs and loose fronts, a pleated vest being sometimes set in, and ornamented with feather stitching

Fig. 2.—FANCY WICKER BASKET.

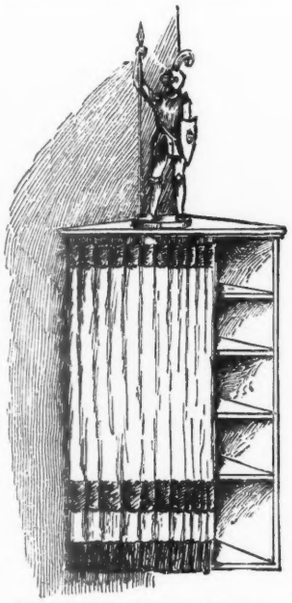
or drawn work. The percales, too, are pretty, trimmed with ruffles, scalloped in buttonhole stitch, with blue or red cotton, to match the figure.

A dressy house sacque, that is suitable to slip on, cool afternoons and evenings, is of large figured challi, with a cream-colored ground. It is nearly tight fitting. The vest is of India-red Surah, and the collar and cuffs of red velvet. Bows of satin-faced velvet ribbon, of the same shade, are set on

the neck and waist, while down each side of the vest, runs a full ruffle of Fedora lace, two rows of which are also fulled slightly around the bottom. The newest imported mantles are scarf-shaped, with shoulder seams to adjust them, and are tied at the waist with bow and ends of watered ribbon. A silk-lined hood sometimes finishes the back.

A Corner Cabinet.

The cabinet represented in our illustration needs but little explanation. The shelves can be fitted



CONVENIENT CORNER CABINET.

to strips nailed to the walls, or two boards may be set upright with cleats fastened to them on which the shelves are to rest. The upper shelf should be large enough to fit on the top of the two boards, and be fastened to them to strengthen the frame. It should also be wider than the other shelves by at least two inches, for the projection will allow of the use of a pretty border along the front. A curtain is hung in front of the shelves by rings. This curtain, if prettily embroidered, helps to make this corner closet very effective in ornamenting the room. The top shelf will furnish a good support to a Rogers group, a large vase, or anything in the shape of bric-a-brac.

Knitted Tidy.

To knit the pattern described below, use fine knitting cotton or coarse linen thread and four No. 16 steel needles.

Cast on 4 stitches. Join them into a circle. First round—[Make 1, 1 plain]; repeat what is in brackets over and over all round. Second round—Plain knitting. Third round—[Make 1, 1 plain]; reapeat all round. Fourth round—Plain knitting. After every odd round comes a plain round, until after twenty-first round. Fifth round—[Make 1, 2 plain]; repeat all round. Seventh to the twelfth round increase 1 stitch, so that in twelfth round it reads, make 1, 7 plain; to be repeated all round, not forgetting plain rounds between. Thirteenth round [Make 1, narrow, 4 plain, narrow]; repeat over and over what is in brackets, all round. Fifteenth round—[Make 1, 1 plain, make 1, narrow, 2 plain, narrow]; repeat all round. Seventeenth round—[Make 1, 3 plain, make 1, narrow, narrow]; repeat all round. Nineteenth round—[Make 1, 5 plain, make 1, narrow]; repeat all round. Twenty-first round—[1 plain, make 1, 5 plain, make 1, 2 plain]; repeat all round. Twenty-second round—[2 plain, narrow, 1 plain, narrow, 3 plain]; repeat all round. Twenty-third round—[2 plain, make 1, 3 plain, make 1, 3 plain]; repeat all round. Twenty-fourth round—[3 plain, narrow, 5 plain]; repeat all round. Twenty-fifth round—[3 plain, make 1, narrow, make 1, 4 plain]; repeat all round. Twenty-sixth round—All plain knitting. Twenty-seventh round—[Make 1, 9 plain, make 1, 1 plain]; repeat all round. Twenty-eighth round—All plain knitting. Twenty-ninth round—[1 plain, make 1, 9 plain, make 1, 2 plain]; repeat all round. Thirtieth round—All plain. Thirty-first round—[2 plain, make 1, 9 plain, make 1, 3 plain]; repeat all round. Thirty-second round—All plain. Thirty-third round—[3 plain, make 1, 9 plain, make 1, 4 plain]; repeat all round. Thirty-fourth round—[4 plain, narrow, 5 plain, narrow, 5 plain]; repeat all round. Thirty-fifth round—[4 plain, make 1, 7 plain, make 1, 5 plain]; repeat all round. Thirty-sixth round—[5 plain, narrow, 3 plain, narrow, 6 plain]; repeat all round. Thirty-seventh round—[Make 1, 5 plain three times, then make 1, 1 plain]; repeat all round. Thirty-eighth round—[7 plain, narrow, 1 plain, narrow, 8 plain]; repeat all round. Thirty-ninth round—[1 plain, make 1, 6 plain, make 1, 3 plain, make 1, 6 plain, make 1, 2 plain]; repeat all round. Fortieth round—[9 plain, knit 3 stitches together, 10 plain]; repeat all round. Forty-first round—[2 plain, make 1, 15 plain, make 1, 3 plain]; repeat all round. Forty-second round—[3 plain, narrow, 11 plain, narrow, 4 plain]; repeat all round. Forty-third round—[3 plain, make 1, 13 plain, make 1, 4 plain]; repeat all round. Forty-fourth round—[4 plain, narrow, 9 plain, narrow, 5 plain]; repeat all round. Then make the following edge by itself on two needles, and when long enough, sew neatly to tidy, round each joint, fulling it enough to look pretty.

EDGE FOR TRIMMING TIDY.

Cast on 5 stitches, knit across plain. First row—Slip 1, make 1, narrow, make 1, 2 plain. Second row—Slip 1, knit rest plain. Every even row is like the second row. Third row—Slip 1, make 1, narrow, make 1, narrow, make 1, 1 plain. Fifth row—Slip 1, make 1, narrow, make 1, narrow, make 1, 2 plain. Seventh row—Slip 1, [make 1, narrow] 3 times, make 1, plain. Ninth row—Slip 1, [make 1, narrow] 3 times, make 1, 2 plain. Eleventh row—Slip 1, [make 1, narrow] 4 times, make 1, knit 1 plain. Thirteenth row—Slip 1, [make 1, narrow] 4 times, make 1, 2 plain. Fifteenth round—Bind off 8 stitches, make 1. narrow, make 1, 1 plain. Sixteenth round—All plain. Repeat from first row of edge until long enough, then bind off.

Fancy Linen Collar.

This little collar is particularly effective when worn with a dark dress, as the bright ribbon worn so near the face makes it very becoming. The lower band should be made to fit the neck; fold it together with the opening on the top. Fold a strip of linen together so it measures half an inch in width, when the edges are turned in, and about three-quarters of a yard long; stitch this near the edge on both sides, and cut it in two-inch lengths; fold these little pieces together to form the loops, and baste them in the neck-band half an inch apart, or a trifle more or less, to make them come out even, as shown in the illustration. They should be three-quarters of an inch high when finished. Stitch

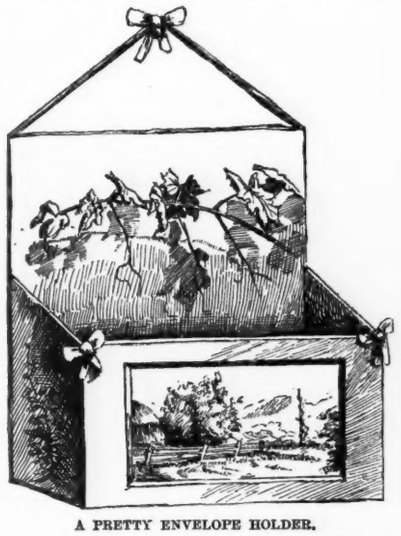
FANCY LINEN COLLAR.

the band across, and work the button-holes in it. The cuffs are made in the same manner. The ribbon is slipped through the loops and tied in a bow.

JELLIED CHICKENS.—A very nice supper dish for an evening entertainment. Dress a pair of fowls as for roasting, omitting the stuffing, and boil slowly in as little water as possible until they are so tender that the meat drops from the bones. Chop or cut the meat into small pieces, seasoning with salt, pepper, and the least bit of grated nutmeg and lemon rind. Much of the excellence of any kind of jellied meats will depend upon the skill of the cook in seasoning. Put some slices of hard-boiled eggs in the bottom of a mould; next place a layer of chicken, and continue with alternate layers of eggs and chicken until the mould is two-thirds full. Reduce the broth in which the chickens were cooked, by boiling until there is not more than half a pint. Season this and pour it over the contents of the mould. Turn out on a platter, and garnish with bright-red beets, boiled and cut in fancy shapes, dark-green parsley, and light-colored celery tops.

An Envelope Holder.

The accompanying illustration shows a convenient and pretty holder for writing-paper and envel-



A PRETTY ENVELOPE HOLDER.

opes. It is made out of an old pasteboard box, cut away at one end and part way down the sides, with piece fitted into the front. The edges are bound with ribbon after the box has been covered with a some neat paper or cloth. Sprays of flowers may be painted on the upper part and on the sides, and a picture on the front, as shown in the engraving, or the decoration may be of any kind to suit the taste of the designer. If neatly made, this is an ornamental as well as useful article.

WHIPPED CREAM.—This, one of the easiest made deserts, frequently gives the good housewife considerable of unnecessary trouble, the cause of which is that the cream is either too warm or too fresh. Cream skimmed about noon from the previous evening's milk, which stood in a cold spring all night, is generally cold enough; if not, place it for five or ten minutes on a little finely crushed ice sprinkled with salt. Then beat it briskly until it is stiff enough for a spoon to stand up in it; add vanilla flavoring and sugar to taste. It requires but little sugar—two or three tablespoonsful to a quart of whipped cream is sufficient. A pint of fresh cream makes a quart of whipped cream. If it is not desired quite so rich, or if the quantity is not sufficient, the whites of two eggs beaten to a stiff froth may be added without the least injury to the quality of the desert, only it must not be added until the last moment before serving the cream. Serve in a glass dish not too deep, and arrange meringues around the edges. This makes a delicious, rich desert, and, in the country, an economical one.

MERINGUES.—Beat the whites of eight eggs and one pound of granulated sugar to a dry froth. Scoop out small tablespoonfuls and slide them uniformly upon a flat baking tin which has been buttered with unsalted butter, or lightly greased over with a few drops of fine salad oil; place them in a cool oven, only warm enough to dry them. They will be of a pale yellow color throughout, perfectly dry and crisp, and when cold melt upon the tongue; they are served with whipped cream.

BOYS & GIRLS' COLUMNS

Doctor Croak and His Student.

Bo Peep was a medical student. He was not the Bo Peep who lost his sheep. In fact, when he began life, he was like the sheep in one respect, for he carried his tail behind him. It was a funny little tail, and that, with the chunky black body, made all there was of Bo Peep. Strictly, he was a tadpole, but the children who saw him wriggling through the shallow water, called him a pollywog. He grew until he became about as big as a nickel five cent piece, and then a wonderful change took place. First, two tiny hind legs sprouted and grew from the underside of his body, and soon he had another pair forward. His tail disappeared. It did not drop off, but was absorbed. Then Bo Peep climbed out of the water, and hopped around, a perfectly-formed, but very small frog. During the warm summer nights he would sit on the sedgy banks, and join in the general frog chorus, with his shrill "peep! peep!" And that is how he came by his name. When he was old enough to look around and think, he made up his mind to become a doctor if he could.

The most noted frog in the pond where Bo Peep lived, was Doctor Croak. When he arrayed himself in his cocked hat and big wig, green satin coat and white silk vest, he made the others all think that he was a very great frog indeed. But with all his ways, he was not a bad old frog at all. One time when a brown-coated friend ventured to give him a hint about the style he put on, Dr. Croak replied that "he felt it incumbent upon him to maintain the dignity of his profession." His friend was satisfied that it was all right, though he did not quite understand all the long words.

When Bo Peep hopped over to the big button-bush beneath which Doctor Croak lived, he was received very kindly. The doctor listened patiently when he told of his hopes and ambitions, and in the end consented to take him as a medical student. He never had any reason to be sorry. Though Bo Peep was up to little froggish pranks, he always played them off on the other youngsters, and was very useful and devoted to his great preceptor. He went with him on all his visits to sick and injured frogs, mixed and prepared the medicines, and what was better than all else, he learned just what the doctor's big words all meant.

A short distance from the button-bush that marked the doctor's home, was a pile of stones near the water-side, overgrown by docks and grasses, and here lived a very wise old frog, named Solomon Rana. On an old, half-decayed log, with one end in the water and the other on the bank, the old frog used to sit for hours together, in very deep thought, and in that way he got his reputation for wisdom. He never told any one what he was thinking about, for he had never quite worked it out in his own head. What puzzled him the most of all were boys. Sometimes one or two of them would stroll along the opposite shore of the narrow pond with a gun. One of them would raise it to his shoulder, point it at a small tree, then would come a flash, a sound like thunder, and some small, harmless bird would fall dead under the tree, while all the frogs up and down the pond and the brook that flowed through it, would plump, panic-stricken, into the water. But what was even worse for him, these boys, and many smaller ones, at other times came down to the pond and pelted with stones every frog that dared to show his head. There were other things to disturb the tranquil life of the frog-pond, but old Rana could understand them. Sometimes a great bird swooped down among them, and bore away a frog, and at others a spotted water-snake would glide along, seize a small frog and carry it off in his terrible jaws. But the other frogs knew that their luckless kindred had gone to become food for their captors. The boys, however, never ate the frogs they stoned, nor the little birds they shot.

One day, while old Rana sat on his log in deep meditation, the subject of his thoughts came nearer to him than he suspected. Two boys who were strolling along the opposite shore, caught sight of him. The next moment a large stone struck the log, just beneath his feet. He was hurled into the air and came down head first on a rock, from which he slipped into the water. The cool bath restored his scattered senses; he swam unseen to a clump of sedges, behind which he took refuge, and sat quietly until the boys were out of sight. Then he crept feebly home. His devoted little wife, in her green gown and white kerchief, bathed his bruised head, and did the best she could. In the morning poor Rana had a racking headache, and felt sore all over. So Madame Rana went and called Doctor Croak. He came, attended, as usual, by Bo Peep. The injured frog sat on a mossy stone, with a night cap on his head, and a meek look of suffering in his face. He had eaten nothing, and so Bo Peep sat down and hashed up a grasshopper he had just caught, while Madame Rana mixed up a soothing drink for the patient. Then Doctor Croak proceeded to make what he called a "diagnosis of the case." After looking carefully at the bruised head, and feeling the pulse, he remarked: "Im-

DOCTOR CROAK MAKING A DIAGNOSIS.

Drawn and Engraved for the American Agriculturist.

merse his pedal extremities in aqua pura, of a tepid temperature." "Oh, dear!" cried poor Madame Rana, "what's all that?" "Just bathe his feet in warm water; that's all," whispered Bo Peep in her ear. "Then," continued the doctor. "apply a dampened compress to the cerebrum." "Tie a wet rag on his head," explained the little student. Doctor Croak was still holding his patient's wrist in one hand, and his watch in the other, when a sight of terror met his gaze. There were those two terrible boys, coming right down the other side of the pond. He dropped the gold-headed cane from under his arm, seized the patient by one hand, while Bo Peep took the other, and all scrambled around behind the pile of rocks, without taking time to think of "professional dignity." There they sat, hidden by the weeds and grass, until the boys had gone past. Then they made a bed of leaves for poor old Rana, and the doctor told his student he might remain there all day, and help Madame Rana take care of him. "Oh, dear!" cried the sick frog, who had kept silence through it all, "how much better this world would be without boys!" "There wouldn't be any fun at all without boys," said Bo Peep; "no more'n there'd be frogs without polliwogs." "No," said Doctor Croak; "but the world will be much happier when every boy has learned never to inflict needless suffering on a fellow-creature." "And every girl, too," added Madame Rana.

Doctor's Talks.

One of my young friends came to me with a story of a "most wonderful plant," that he had seen in a greenhouse, which, he said, bore "flowers upon the leaves." I expressed a doubt that flowers could be found growing upon leaves, or, indeed, that the plant in question had any "proper leaves at all." This produced the effect I desired, a proposal to bring me a piece of the plant, and show me that he was right. In a few days, Master Edward came with a piece of the plant, which its owner had given him. "There," he asked somewhat triumphantly, "are not those flowers?" "Certainly." "Are not those leaves?" "By no means." At this, Master Edward looked "I don't believe you," but was too well mannered to say so, and merely said "Cannot I believe my own eyes?" "Not al-

Fig. 1.—BUTCHER'S BROOM.

ways, unless you have learned to use them?" Among plants, you will soon learn that things are not what they seem." You will find that frequently a part of a plant will answer several uses, and that an office, or function, will be performed by several different parts. Thus, climbing plants are held to their support in various ways. The bean twines its stem around the pole. The grape has a special tendril, a branch which coils and holds the vine to its support. In the pea the end of the leaf is formed into a tendril, and in other plants, as in the clematis, the leaf-stalk, or petiole coils and holds the vine to its support. You will find various instances where the same work is performed by different parts. Now in the case of this plant, which appears to be

A SHRUB BEARING FLOWERS UPON ITS LEAVES.

This shrub, which presents its flowers in such an unusual place, growing from the middle of its leaves, is abundant in Southern Europe, and also in the South of England, and is commonly known

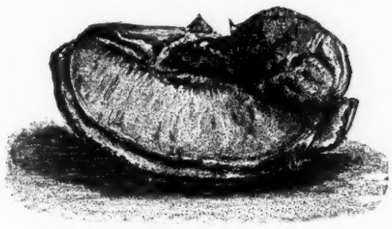


Fig. 2.—AN ORANGE WITHIN AN ORANGE.

as "Butcher's Broom," for the reason that its stiff branches were formerly used by butchers to sweep off their blocks. Its botanical name is *Ruscus aculeatus*. *Ruscus* being an ancient name for Bush Holly, and *aculeatus*, prickly, refers to the prickly nature of the plant. Strange as it may seem to a superficial observer, this shrub belongs to the Lily Family, and is closely related to Asparagus, which is also placed in the same family. There are several plants which produce no true leaves, but the petioles, or leaf-stalks, are expanded, and leaf-like perform the functions of leaves. In the orange we see an approach to this, the leaf-stalks bearing a wing, or leaf-like expansion on each side. In asparagus, what pass for leaves, are really short green branches, while the true leaves are represented by minute scales at the base of these false leaves. In *Ruscus*, what appear to be leaves, are short branches flattened out to appear leaf-like, and as the flowers are borne upon these, they are not so much out of place as appears at first sight. The small, white flowers are succeeded by a red berry, about one-third of an inch in diameter. This shrub, in our Northern States, needs the protection of a greenhouse, but would be hardy in Virginia and southward. In England it is planted as an ornamental shrub, and known as "Pettigree" or "Pettigrue," a name from the French words for "little" and "Holly." The young shoots are in some localities eaten, like asparagus.

A few weeks ago a very neat package came to me, which, upon being opened, disclosed a tin box, within which was a specimen that I was very glad to see, as it illustrated a subject in which I am much interested—*Teratology*. The specimen was sent by Miss Maggie Halliday, of Hudson Co., N. J.

A FREAK OF AN ORANGE.

Miss Maggie, in eating an orange, soon discovered that it was unlike most oranges, being, in fact, what boys call—as applied to fire crackers—a "double-header," one orange attempting to grow within another, as shown in figure 2, which represents the appearance of the specimen when it reached us. Plants often depart from their regular or normal form, and present unusual shapes.

NOT CONFINED TO THE FRUIT.

The root, stem, leaves, flowers, and other parts, as well as the fruit, may each, at times, and without any apparent cause, take on a form quite unlike the usual one. These appearances may be due to the fact that some parts fail to grow. Sometimes parts, usually separate, grow together, or where we usually look for but one part, several are produced, as in double flowers, where, in place of a single petal several may appear, and thus in various ways these unusual forms are produced, which are termed "monsters." These monsters are of great interest to botanists, who often, from these departures, learn much of the real structure of plants, and several learned works have been written on "Teratology," as the study of monsters is called. In the present orange, a double set of those parts, which, in ripening, would form the fruit, was produced, one within the other. There are orange trees known, in which the fruit is always of this character, and in Europe are propagated as curiosities.

A CURIOUS PLANT—THE ELEPHANT'S FOOT.

In most large greenhouses there is usually found a plant, which is cultivated as a curiosity rather than for its beauty—the "Elephant's Foot," *Testudinaria elephantipes*. This comes from the Cape of Good Hope, and belongs to the Yam Family, *Dioscoreceæ*. The true Yams produce large, fleshy, edible tubers, which grow entirely underground; but in this, the corresponding portion, or root-stock, grows entirely above ground. It is hemispherical, and varies from one to four feet in diameter, with a thick, corky bark which is broken up into squares, which give it the appearance of the shell of a tortoise, whence the name *Testudo*, a tortoise. The interior of this is fleshy, and from having been used as food by the natives, "Hottentot's Bread" is one of its common names in South Africa. Nothing can be more unpromising and lifeless in appearance than one of these root-stocks, yet given proper heat and moisture, it will push forth shoots which develop into vines, which climb to the height of thirty or forty feet, and, being clothed with an abundance of heart-shaped, bright-green leaves, are in marked contrast with the lifeless appearance of the root-stock from which they spring. Like the Yams, the flowers in this are inconspicuous, with the two sexes on different plants, and unless one has plants of both sexes, which is rarely the case, seeds can not be produced. The appearance of the root-stock suggested the specific name, *Elephantipes*, Elephant's Foot. Another species, *T. Montana*, is found at the Cape, and still another is a native of Mexico. THE DOCTOR.

Aim to be Polite.

NELLIE CHASE.

Politeness consists in doing the kindest thing in the pleasantest possible manner. A selfish person

Fig. 3.—THE ELEPHANT'S FOOT.

is never truly polite, because he does not feel an interest in others, and, therefore, is not always able to assume a gracious manner. A person who is never willing to oblige others at home is as much at a loss to know how to be polite abroad, as he would be if compelled to speak a language unfamiliar to him. Politeness, like charity, begins in the home circle. But it should never end there.

Boys should early be taught to lift their hats and bow whenever they meet a lady. Our grandfathers were taught to bow, and our grandmothers to "courtesy" to every one they met on their way to and from school. It was an admirable social custom, and ought not to have been allowed to fall into disuse. Boys should be taught *at home* to remove their hats at the door, to clean their feet on the door-mat outside, to walk quietly and gracefully across the room, to sit and stand erect, to speak pleasantly and frankly, to reply promptly, truthfully and respectfully when addressed, to keep their hair and clothing neatly brushed, to consider well-polished shoes, neat clothes, and clean hands and face just as essential when no one but the family is present, as when there is company; they should be permitted to help entertain company, and should make themselves useful whenever their help is needed. A boy who is unselfish and "handy" enough to replenish the fire, sweep up the hearth, bring in wood and water, or in any way add to the comfort and convenience of his nearest relatives, without being reminded of these little duties, is a treasure to his mother, and has benefited himself greatly by laying a good foundation for the performance of all those little attentions which society exacts from young men. Every intelligent boy ought to know that it is against all rules of good breeding to use profane or vulgar language; to loll or lounge on chairs or sofas in the presence of ladies, to sit with the feet on a table or the back of another chair; to whistle loudly indoors, to speak rudely or harshly to those older than himself; to sit while ladies are standing; to occupy the easiest chair in the room when there are others present entitled to it by age, infirmity or courtesy; to *order* a friend or relative as though he were a servant; to slam doors; to assume a swaggering air of superiority; to quarrel with any one; or to treat visitors with ill-bred indifference and contempt.

Little girls who wish to be agreeable, must remember that besides observing all the rules laid down for their brothers, it is ill-bred to act in a sullen or churlish manner, to say spiteful things, to ridicule the aged or deformed, to talk and laugh so loudly as to attract notice in public, to be petulant, to find fault with a gift, and to complain about the weather or anything else unavoidable that happens to be particularly disagreeable.

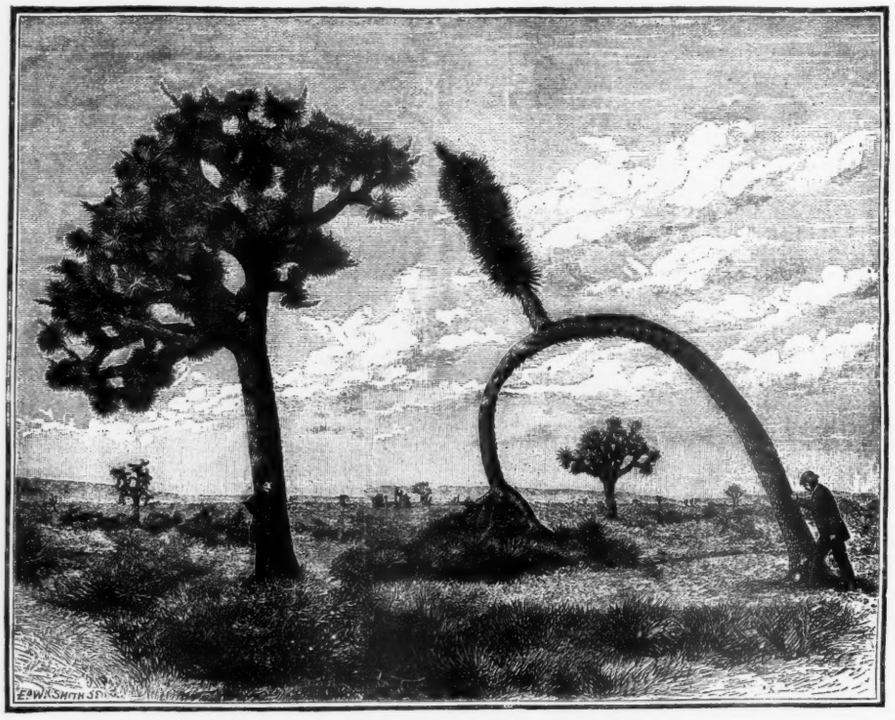
Girls, try always to be natural, to forget self, to be gracious toward every one, to cultivate an amiable disposition, and try to add to the happiness of others. If possible learn to walk in an easy and graceful manner without mincing or taking steps too long. Learn to use your hands, and do not sit in company with your arms tightly folded, as though they were not intended for present use. Conversation requires gestures at times. If asked to sing or play, comply at once, if it is in your power to do so. Be scrupulously neat in dress, and see that your room is always in order. And all such disagreeable habits as picking the nose, ears, or teeth in company, biting or trimming the nails, yawning and appearing bored when any one—particularly an old person—is speaking. Never interrupt any one, because he is telling you a tiresome story. You can bear the infliction much better than he can endure the wound his vanity will receive. Always acknowledge an acquaintance, if worthy of your respect, no matter where he is, or however shabby his clothes may be. The young girl or boy who has a polite bow, a smile and a pleasant word for every one, will be blessed with many friends. Above all, learn to be truehearted and sincere.

A silly, fickleminded person, with no opinions and principles worth defending or retaining, is at best a worthless member of society, and one who will never have much influence for good. He may attain the mere outward polishing of manner, but his mind and soul will never shine. Such politeness may make a fop or "dude" or a "dudine;" but it will never make a true gentleman or lady.

Will not our young readers strive to attain the courtesy that begins at the heart's core and not at the lips? It is worth trying.

American Deserts.

The vast tract of land known as the "Great American Desert" has been largely reclaimed by irrigation, and the march of civilization generally. There are still large areas of desert territory in the West and far West. The most noted of these arid regions is the Colorado Desert, which extends from the Colorado River for about a hundred miles westward towards the Pacific. North of this is the Mohave Desert of wide extent, but of the dimensions of which we are not informed. Upon opening a recent "Gardener's Chronicle," (England), we were almost startled by a picture which it published, for the purpose of showing a Yucca, very common in those desert regions, but it shows so strikingly the general aspect of these desert lands, that we here reproduce it. The vegetation of these desert stretches is very sparse, rarely any plants attaining the size of the Yucca, as here shown, but are mainly low Cactuses, which, with other low-growing prickly shrubs, make up the scanty vegetation. This *Yucca brevifolia*, appears to be characteristic of the Mohave Desert. It is a striking species, growing from fifteen to thirty feet high, and branching at the top, its trunk being often two feet in diameter. Its short, spine-pointed leaves are rarely more than eight inches long, and its numerous white flowers have a fetid odor. In the engraving is shown an unusual occurrence. A plant of this Yucca, whether by an overweighted top or otherwise, has been bent over, until its top has become imbedded in the sands of the desert, where it appears to be held fast. It has apparently made an attempt to assert its vitality by producing a panicle of flowers. But without this, which is a mere accident, the rest of the picture gives one an excellent idea of the appearance of these desert stretches, which occur in various localities in the far West.



SCENE IN THE MOHAVE DESERT.

Profitable Mistakes.

An enterprising young undertaker once went out to Jamaica, from London, in hopes of bettering his condition. He was not disappointed, business flourished and he wrote to his father in England to send him a supply of black and grey cloth and twenty gross of black tacks. Carelessly, however, he omitted to cross the T, and the order read "twenty gross of black jacks." So his relative had made and shipped to him this large quantity of quart and pint tin pots, ornamented with painting, and to which the maker had given the quaint name of "Black Jacks." The young man, as may be imagined, was aghast at receiving this apparently useless consignment; but an ingenious friend consoled him by offering to take them off his hands at the invoice price; and glad enough he was to agree to this proposition. His bright friend then advertised for sale a new and fashionable punch vase just imported from England, and disposed of every one of the jacks, making 200 per cent. Sometime afterward, as the young men were talking over the lucky blunder, the friend said to the undertaker, in fun, "Write to your father now and order a gross of warming-pans, just to see whether the well-informed people of London will have the sagacity to consider such articles necessary in this latitude." Number one laughed at the idea, but thinking it a good joke, really did as suggested, and sure enough, the literal old goose of a father actually dispatched a gross of warming-pans to the tropical island of Jamaica.

Again, the son was in despair, and again his friend came to the rescue and purchased the lot. He then knocked off the covers and sold them to the planters as a new kind of sugar ladle. They went off like hot cakes and he realized a large profit.

Both young men returned home to England with fortunes, and had many a good laugh as they related the story of the black jacks and warming-pans, number two always ending with, "Nothing is lost in a good market;" and he might have added, "A ready wit can make things fit."

Enigma.

I am a word of letters four,
My first is in *chase*, but not in *boar;*
My second in *calm*, but not in *storm;*
My third in *hot*, but not in *warm;*
My fourth in *folly*, but not in *fun;*
In *ammunition*, but not in *gun*.

Answer to Conundrum in August.—Twenty pounds.

Answer to Riddle in August.—Oval.

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How to Get it for Nothing, see page 401.

The Legend of the Owl.

What a lonely sound is the hooting of an owl at night, when everything else is still, and when it seems to say, so pathetically,

"To-whoo! to-whoo!
Cold toe—toe!"

and in the "long ago," when little country folks heard the note of the bird of darkness, they very likely sang the quaint, rural ballad of the time:

"Once I was a monarch's daughter,
And sat on a lady's knee;
But am now a mighty rover,
Banished to the ivy tree,
Crying hoo, hoo, hoo, hoo, hoo, hoo,
Hoo, hoo, hoo, my feet are cold.
Pity me, for here you see me
Persecuted, poor and old,"

for they believed the owl was originally of royal parentage. In Hertfordshire, England, however, old nurses have a different story about the big-eyed owl, which they tell at bedtime to their young charges, and which runs thus: "A fairy once disguised herself as a poor old woman in great distress, and hobbling into a baker's shop, begged of his daughter the gift of a piece of dough. She gave her a very small piece, which the disguised fairy requested leave to bake in the oven, where it swelled miraculously to the proportion of a good sized loaf. "That is too much for a beggar," thought the girl, and she refused to let the old woman have it, giving her instead another smaller bit of dough. This, however, also swelled in the oven to even a larger size than the first, and again the covetous maiden took it away. A third, and very tiny morsel, was then bestowed on the ancient crone; but when that, too, came from the baking, the largest loaf of all, and when the baker's daughter again wished to confiscate it, the fairy became angry at her manners, and suddenly resuming her proper form, struck the girl with her wand, when, presto! she was instantly changed into a huge owl and flew, hooting, out of the window."

It is probable that it was this old legend to which Shakespeare alludes when, in Hamlet, he makes Ophelia say, "They say the owl was a baker's daughter. Lord, we know what we are, but know not what we may be."

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Chat with Readers.

See elsewhere description of new and valuable present for the new subscriber to the American Agriculturist for 1888, whose subscription is immediately received. This is a great opportunity.

Long Time Loans.—Mr. John Cox, Jackson county, Missouri, is referred to the May number of the *American Agriculturist*, Humbug Department, for exposure of the long time loan of the Chicago Journalistic Loan business.

American Association for the Advancement of Science.—At the meeting of this Association of Scientists of the United States, held in New York, August 10-17, we noticed that the *American Agriculturist* was fully represented by such old and widely known members as Andrew S. Fuller, of New York Prof. W. J. Beal and Prof. A. J. Cook, of Mich., Prof. Bessey, of Iowa, all of whom took an active part in the proceedings.

The Outlook in Arkansas.—B. F. Solliday, Jackson county, Arkansas, writes us, recently, "The house plan, in the August *American Agriculturist* is just what I have been looking for; it suits my needs exactly, but I would like to have the details of the framing of the oriel, and dormer windows, and roof. Can you furnish me with them? Crops of all kinds are doing remarkably well here, as we have had sunshine and rain in just the right proportions. Dairying would be quite profitable here, as butter and milk are always high, and the natural grasses form excellent pastures, when the timber is cut, and cotton seed furnishes a cheap and good winter food."

Missouri's Favorable Outlook.—A letter received August 1st, from Jno. G. Manger, one of our subscribers in Missouri, says crops were never better in this section of Southwest Missouri. The corn looks fine, and wheat will average thirty-three bushels to the acre. The apple crop is a little short. Last year it was abundant. Things seemed to have a new life, and immigration is pouring in from the North and East. This section of the country is equally devided politically. So everything is run right in the country, and no debts on hand. Script is worth one hundred cents on the dollar. This is on the Ozark Mountain, and the water is from springs; therefore it is a very healthy country.

Fire-Proof Artificial Stone.—E. R. Ninville, Wasco county, Oregon. It is not at all difficult to make artificial stone, and by pressing the plastic materials in moulds, secure almost any desired form. But the principal difficulty encountered in the manufacture of artificial stone is to obtain the different materials of which it is made. Very good artificial stone can be made with Portland cement, sand and water; and this may be pressed in moulds until dry. For making fire places, there is nothing better than fire brick, made in the form desired, but you may not have any fire clay from which to make such bricks. Ashes added in liberal amount to common lime mortar gives it the advantuge of resisting the combined action of fire and water.

The "Museum Pest."—S. T. Owen, Chemung county, New York. The small, dark-brown beetles you sent us are not carpet beetles, nor the parents of the mis-named Buffalo moth, but they belong to a family of noxious wood-boring beetles known as *Scolytidæ*. The Buffalo moth, or, more properly carpet beetle, belongs to the *Dermestidæ*, a large family of beetles, which live almost entirely on animal substances, such as meat, feathers, hair, and wool; consequently are often very destructive to stuffed birds and animals, and one species is widely known as the "Museum Pest." The little beetle you sent has brownish ring-cases or elytra, while those of the carpet beetle are handsomely ornamented with white, with a vermillion stripe along the center of the back, the inner edges of the elytra having a narrow margin of this color.

Culture of Coffee.—J. T. Siggetkaw, Hernando county, Florida. We know of no work exclusively devoted to Coffee Culture. There is a work on tropical products generally, published in London, over fifty years ago, and probably out of print. It is of no use to undertake to grow coffee in any locality ever visited by frost. Very rich land is not required. The land is laid out in checks, nine to twelve feet apart, and a number of seeds planted at the intersection of the lines; when the plants are up, and are well established, all but the strongest one are carefully removed. The plants are kept free from the encroachments of weeds. In the second year, a little fruit is born, and in the fourth year, the trees will be in full bearing. Some planters sow the seeds in a seed bed, and transplant when about a year old; but planting the seeds in checks is generally preferred. In countries subject to tornadoes, the coffee trees are kept cut back to the hight of six feet.

A White-leaved "China Tree."—Mr. J. L. Normand, Avoyelles Parish, Louisiana, sends us a leaf of the "China Tree," which is perfectly white, or rather cream-colored, and says that the entire foliage is like this specimen. The "Pride of India" (*Melia Azedarach*), is a popular shade and ornamental tree throughout the Southern States, where it is singularly enough called the "China Tree," or "China Berry Tree." There is a variety of the "China Tree," called, from the form of its head, the "Umbrella China Tree," and this white one appears to be a seedling of that. The new variety is an accidental seedling that came up in Mr. Normand's grounds. He calls it "Albinos China Umbrella," which is neither Latin nor English. It has been decided by a convention of leading European horticulturists, that mere cultural or garden varieties should not be designated by Latin names, but be given a name in the vernacular of the country in which they originated.

The Peach Crop Destroyed by Rosebugs.—For many years the common rosebug (*Macrodactylus subspinosus*), Judge J. Alexander Fulton, of Delaware, writes us, has been a well known and much feared enemy of the peach in some sections of the country, but it was not until the present summer of 1887, that it appeared formidable upon the Peninsula. This season, however, the rosebugs have appeared in some orchards in vast numbers, and have created great and just alarm among growers. Their favorite food seemed to be the leaves of the plum and cherry trees, which they ate voraciously, leaving the trees brown and dry, as if scorched by a fire. But the plum and cherry trees did not afford sufficient food, and they then attacked other fruits, and the peach trees seemed to be their next choice. Their numbers were absolutely incredible. They covered the leaves and also the fruit. I have been assured by trustworthy growers that they have counted as many as thirty on a single leaf. When they alight on a leaf or peach, they remain until they have extracted every bit of sap from it, leaving it dry and shrivelled. Of course this means utter destruction to the crop, and great injury to the trees. These insects appeared about the last of May, and continued for about two weeks, when they disappeared. So far no sufficient remedy has been proposed. In answer to inquiries made at the Agricultural Department, Washington, the entomologist writes: "The rosebug is one of the most difficult insects which we have to fight, as it lives in the larva state under ground, where it cannot be reached, and as the adult insect flies so readily, and feeds on so many different plants, there is no way to fight it except by the expenditure of time and trouble." He recommends spraying the trees with a solution of Paris green, or London purple, using one pound of poison to a hundred gallons of water, with an addition of two or three pounds of flour to make the mixture adhesive.

Canning Corn.—Mr. R. Franklin, New York. The canned corn offered for sale in stores is preserved in tin cans by those who make a business of it. The cans have an opening at one end closed by a cap, which fits into a groove. Great care is taken to select the best kind of corn, to gather it at the right time, and to can it immediately after it is gathered. It should never remain over four hours before canning. The corn is cut from the cobs with a curved knife made for the purpose, taking care not to cut too close to the cob. The cobs are boiled in water, just enough to cover them, for an hour. The cans, with the covers soldered on, are filled with corn through the opening for the cap, pressing it in hard, but leaving a space about a fourth of an inch at the top to allow for expansion. The liquor obtained by boiling the cobs is added, sufficient to cover the corn in the cans, and if not of the sweetest kind, a teaspoonful of white sugar is added. The next step is to solder on the caps, each of which has in its center a small hole pricked, called the vent. After the caps are soldered on, and the vent still open, the cans are "processed." A kettle or vat is provided, containing water, in which the cans may be boiled for the required time. The cans of corn are boiled for two hours, when they are taken out, one at a time, with tongs made for the purpose, set down with a shock on the soldering table, to remove any corn that may stop the vent. The head of the can is wiped with a cold, wet cloth, and the vent closed with a drop of solder. The cans are then returned to the vat, and boiled for four hours longer. There is nothing in this method which one who is dexterous at soldering can not follow; but we doubt if it will pay, considering the trouble and the moderate price at which canned corn is sold by the case of one or two dozen cans.

New South Wales.—Mr. Gavin Pettigrew, one of our subscribers in New South Wales, who has dropped in upon us on his way home from a visit to Scotland, reports that more rain has fallen during the past twelve months in New South Wales than during any corresponding period for over a quarter of a century. The two previous years were marked by heavy drouths. Owing to the prolonged drouth, very many of the cattle died, and now, while owing to the rains, the grass is abundant, the stock is largely diminished in numbers. In two years more, however, it is believed the supply will be fully replenished. In Australia winter begins in May. After the 15th of August the spring commences in New South Wales. The steam communication with San Francisco enables the people of New South Wales to obtain American newspapers in a comparatively short period. Now the *American Agriculturist* goes direct to our subscribers there, whereas before the establishing of the Pacific line it went first to England, thence round through the Red Sea, etc. Mr. Pettigrew thinks that Americans should have a lively interest in maintaining this line, inasmuch as it brings the people of the Australian colonies in direct communication and contact with the United States. By how much facilities for reaching this country are encouraged and increased, by so much will trade with the United States naturally be enlarged. This is certainly a matter worthy of the earnest consideration of the government at Washington.

Deafness Cure.—We receive many inquiries. Mrs. A. E. Powers, Oswego county, New York, writes us: "I am quite hard of hearing, and, from time to time, have received so many circulars promising cures, or recommending various appliances, that I have become completely disgusted, and am waiting for Edison to invent sometning that one can wear in the ear without using a trumpet. I have sent for, and have received, a pair of micro-audiphones, which appear sensible enough, but are too small. When I wrote that the eustachian tubes were closed, they sent a circular with directions for that trouble. Then I wrote that the prime cause of my deafness was catarrh, and in return came another circular, recommending the Real Russian Catarrh Remedy, at one dollar and twenty-five cents per bottle, and the Ear Lotion at seventy-five cents per bottle. This aroused my suspicion, and I appeal to you for information." In answer to the above, one can only repeat what we have said before in these columns, namely, that whenever there is a regular physician of good standing within reach, it is always better to consult such an one in person, than to seek advice and cure by letter from advertising doctors. While the micro-audiphone itself is an apparatus, the construction of which is based upon scientific principles, it cannot accomplish impossibilities. There are cases of deafness in which no medicine nor mechanical devise can restore hearing, and it is in such that the advice of a skillful physician may save disappointment and money.

Trouble with "Johnson Grass."—M. E. R. Van Emman, Lampasas Co., Texas, writes us: "In March last I sowed fifty acres to 'Johnson Grass,' *Sorghum Halepense*, a tall, coarse grass, now becoming very popular in the Southern States. The ground was well prepared with plow, Acme harrow and roller. The ground was excessively dry, and remained so for twenty-nine days after the seed was sowed, when it rained; in a week after this it rained again. In fourteen days there was another rain, and there have been several rains since. The seed did not come up." Our correspondent asks us the reason of the failure. There are so many possible causes of failure, that one should be on the ground to ascertain to which the failure was due. In the first place, was the seed good, and would it have germinated under any condition? The first rain may have started germination, and the young plants been killed by subsequent drouth. The seeds may have been buried so deep that the plantlet could not reach the surface; indeed, it is not possible to say, without an examination, which of several causes led to the failure. The fifty acres are now covered with weeds, and Mr. Van Emman wishes to sow the land to oats next spring; he asks us if he shall plow under the weeds, and plow again in the spring before sowing. The chief point is to prevent seeding the land to weeds, and we should advise mowing them before the seeds are formed. To save labor, they may be allowed to lay upon the land until the spring plowing. The amount of fertilizing matter returned to the soil will be nearly as great, as if the weeds were plowed under green, and labor of fall plowing be saved.

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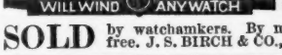

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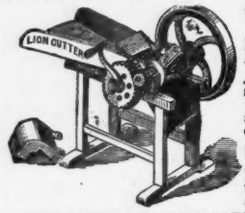

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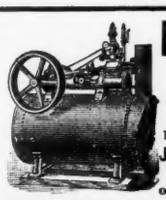

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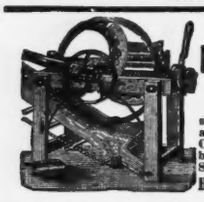

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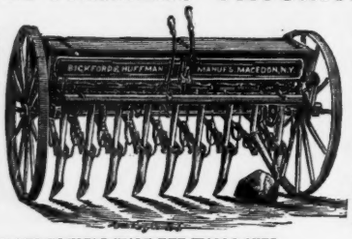

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With Patent Speed Regulator.

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Pinkerton's Detectives.

During the past three years these well-known detectives have rendered us valuable service in tracing our stolen subscription lists, in trailing a fugitive defaulter to Canada, and otherwise aiding us in ferreting out fraud and rascality. We cordially recommend them to our subscribers who may unfortunately require such services. Their charges are high, but it is better to employ good men than those of doubtful character. We propose during the coming year to avail ourselves of their services in mak'ng this department a terror to evil-doers.

Steer Clear of It.

J. J. Lovell, manager of the Campbell Creek Cannel Coal Company, at Malden, West Virginia, forwards us a peck, more or less, of circulars regarding Rudolphe's Specific Remedies, which circulars have been sent through the mails to that quarter. We have repeatedly given our opinion through these columns as to this Specific, and our advice is now, as always, to steer clear of this, and all similar nostrums.

It is a Darling.

W. H. McKnight, the postmaster at Kirk, Texas, forwards us a circular, being sent by an Arkansas Patent Medicine Agency, through the mails, which reads as follows: "Mysteries illustrated! A book with ninety-six pages and over one hundred pictures. Every one must have it. Don't miss this chance. It's a darling and don't you fail to neglect it. It also illustrates and treats some diseases." We are not aware as to the contents of this volume, but judging from the description, the postal authorities should make an immediate descent upon Haynes, Arkansas, and prosecute certain parties there for violating the postal laws.

One Word to Subscribers.

Patronise no doctor who advertises himself, but when you are physically ailing, and require medical advice, go straight to a regular physician, who will prescribe for you. Most of the medicines advertised are purely humbugs. Some of them possess remedial qualities, but never buy any of them without first consulting a regular physician, or asking our advice. We will cheerfully forward such information as we may have to any subscriber who encloses a return stamped envelope. If our subscribers will act on the above suggestions, they will escape many pains, and save many pennies, which might otherwise be thrown away for useless nostrums extensively advertised.

Look Out For Them.

It is getting near the time when the bogus agricultural papers begin to send out their circulars of lottery and other fraudulent schemes for deceiving the unsuspecting, and at the same time offering to throw in a year's subscription to the periodical for a nominal sum. Our Postal authorities here in New York are so watchful that these swindlers cannot use the mails. Hitherto the Postal officials of other cities have seemingly not been able to successfully cope with them, and they have carried on their operations with impunity, notably in Chicago and Cincinnati. A few months since the Post Master at Chicago inaugurated a war upon these swindlers, which, let us hope, will be continuing during the coming winter and autumn. These "publishers" of bogus agricultural papers, which generally are issued long enough to secure the victims' money, have coined fortunes out of the unsuspecting by their various schemes, and it is time that they were all of them jailed.

"Sit Down

and let us have a little quiet talk about Ponies and business," so begins the latest circular of Byron Van Raub, the Kendall County, Texas, humbug Dealer in Shetland Ponies, who has been shown up so often in these columns year after year. Hon. J. L. Lafontaine, one of our subscribers in Roxton County, Province of Quebec, writes us that thousands of these circulars are now being scattered through Canada. We had flattered ourselves that our repeated exposures had pretty effectually suppressed Van Raub in the United States. Now, however, as appears, he proposes to operate across the border. To all our subscribers there we have simply to say, throw the circulars in the waste-basket.

Poison in Flannel and Hose.

The best quality of blue flannel, from which the comfortable summer suits are made, is all wool and dyed with indigo. But there are cheaper qualities, some of which not only "crock" and stain the skin wherever they touch it, while moist with perspiration, but produce effects that plainly indicate poisonous material in the dye. A case of this kind was recently reported to our city health authorities, in which nervous tremors and partial paralysis ensued from wearing a suit of cheap blue flannel for a single day. There are also some shades of brown used in hosiery, which produce excessive irritation of the skin, wherever they come in contact with it, The public should be very cautious in buying cheap blue flannels and other low-priced summer clothing.

Puts and Calls.

At the time of year when the harvest is falling in, and farmers are of good heart and of pleasant temper, the Wall Street "curb-stone" operator is very much inclined to sow his circulars broadcast, depicting therein the ease with which a little bit of money invested "on the street" will ensure (?) an enormous return—in a word, render the investor liable to become a millionaire. Yet, these things never materialize, or, as Pinafore put it, "hardly ever." The daily press is ringing yet with the tale of a Mr. Powers' hasty departure from Wall street's classic vicinage, and of how his "puts" and "calls" languish unredeemed, and to-day another "highflyer" has "gone where the woodbine twineth." There is only one road to fortune, as there is to fame, and its mile-stones, one and all, are marked with the good Anglo-Saxon word—WORK!

There are Mines and Mines.

More money has been lost, a thousand fold, in wild-cat mining schemes than ever was taken out by investors, and, probably, this was what Mr. MacKay, the "big bonanza millionaire," had in mind, when he said: "Put your money in a good mine." Gilt-edged advertisements are easily written-up, and it does not take a genus to "put them in the papers." But thousands of unwary well-intending people have been ruled by them, and investing upon somebody's apparent good faith, and their own abundant hope, have dropped their savings into a hole in the ground. It is only "a word to the wise" which we utter, for many a household recalls tearfully the collapse of the great methodist mine speculation down in Arizona, a few years since, and the fate of "Little Pittsburgh." Every reader of the *American Agriculturist* should remember that *every* proposed mining speculation demands full investigation. Schemes with "fortunes for every one" are of very fearful origin, and fitful life. Investigate.

Venders of Patent Medicines or Specifics Liable for their Failure.

In the course of our duty in protecting our subscribers, we recently had occasion to show up certain quack medicine manufacturers in rather vigorous English. Now their agent writes us a very threatening letter, calling upon the editors of the *American Agriculturist* to retract. Our retraction is this: the principals and all concerned should be prosecuted as professional quacks. During the course of a libel suit, instituted against this periodical some years ago by a vender of patent medicines, which resulted disastrously for the prosecution, Judge John R. Brady, of the United States Supreme Court, made use, in his charge, of the following language, which applies equally as well now, as then:

The seller of a drug, medicine, or so-called antidote, who vends it with an unqualified statement of its efficiency, must take the consequences, if his representations be untrue. Specifics against the "thousand natural ills that flesh is heir to" are not easily attainable, and the medical profession do not claim to have devised many through all their experience and researches. They are, nevertheless, devoutly prayed for, and so potent is the desire for them that reasonable, and indeed unreasonable assertions of their discovery are hailed with joy, and the public confidence is really secured. When a person therefore, assuming to have devised one, represents its accomplishments, the public have a right to rely upon the assurance given, however foolish such a confidence may seem. This world is not composed of Solomons, and even men of good judgment and large experience, especially when the wish is wedded to the hope, are sometimes easily trapped. Drugs should be dispensed with great caution, and the laws which are designed to protect the people from the use of them, save under the guidance of the expert chemist, conscientious druggist, or skillful practitioner, cannot be too stringent. I do not design to express any opinion of the character of the plaintiff's preparation; whether they are good or bad, injurious or harmless, I am not called upon to declare, *BUT OF THE PROPRIETY OF HOLDING MEN TO A STRICT ACCOUNTABILITY WHO ATTEMPT TO PRACTICE UPON THE CREDULITY OF THE AFFLICTED, AND SUBJECT THEM TO A GREATER SUFFERING, I ENTERTAIN NO DOUBT.*

Bramo Yan Again.

Mr. "R. L. W.," one of our valued patrons at Omaha, Neb., writes us: "I mail you to-day a circular of Bramo Yan, which I have been receiving on an average of once in three months. I should be pleased to see your opinion of it in the *American Agriculturist*, and so I suppose would numbers of others, who are, like myself, afflicted with partial deafness."

Three years ago our subscribers were fairly flooded with these circulars, and we then, August, 1884, used the following language in these columns: "Admitting (which we do not), that this 'Bramo Yan' has any remedial powers in deafness, the affliction is due to so many causes, that any one remedy can touch but a small share of the curable cases. In some forms of deafness, relief by human aid is impossible. Yet the sellers of this stuff make no distinction between curable and the incurable deafness. They wish to sell their Bramo Yan." Since the above was written, we have seen no reason to change our opinion of "Bramo Yan." To all our readers troubled with deafness we have to say, consult some regular, reputable physician whom you know, and not any advertising doctor who has "specifics" for sale.

"One Royal Italian Barletta Bond."

The lottery swindle, to which our reader's attention has been directed frequently of late, "does not down," but revives continually, always the same fraud, however its name, location or condition be changed. Now it comes to the front under a double character, "The Barlin Banking Company" whose purpose is to do—rather not do—something about an Italian town, named Berletta. This place is an overgrown village, in Northwest Italy, but what it designs or hopes to do for itself, or why "bonds" are issued in its behalf, are facts seduously refrained of disclosure in the "Banking Company's" prospectus. That the whole thing is a swindle, is manifest from the pretended certificate which accompanies the "Banking Company's" circular, which is signed by nobody, bears no seal, expresses no consideration, and, last but not least, is dated in New York, although the imaginary company is apparently German, and its sphere of operations Italy. We sent our representative to the Hon. Girolamo Marazzi, Italian Vice-Consul, resident in this city, and were informed by that gentleman that the Barletta scheme is but a local lottery, with which the Royal Government has nothing to do. The "bonds" are issued, if issued at all, by some local "authority," and have no relation to any government loan. The "Berlin Banking Company" is without place in the City Directory, and wholly unknown at the Consulate; every intimation of connection between the Barletta lottery and the Italian government is, plainly, false pretension. It cannot be necessary to do more than utter one word of caution, for preventing our readers falling into this trap; every one of them should do as Jul. Goegarn, of Alger county, Michigan, did, when he received the "fake," send their communication to us.

Cautionary.

"You Can Now Grasp a Fortune."

A concern in Chicago is sending to our subscribers (who in turn are sending to us), circulars with the above heading. Accompanying it is another highly-displayed circular, headed "Words of Joy and Hope to the Laboring Millions," wherein numerous schemes are presented for making money. While the rose-colored propositions therein contained are not necessarily of a bogus character, they have an exceedingly fishy appearance, and we should want to know a good deal more about them, before advising our subscribers to even entertain the alluring propositions presented herein set forth.

A Grand Offer.

FOR SEPTEMBER ONLY.

The *American Agriculturist* Cyclopedia of Natural History is one of the finest works published, making an admirable companion for the Cyclopædia, Law Book and History of the United States. It is handsomely bound in English cloth, with gold and ink designs, containing over six hundred pages and over five hundred spirited illustrations (see samples on next page,) which give a life-like aspect to the whole volume and a clear idea of what each creature, is in its natural condition, where nature placed it. There is no more instructive and entertaining pastime than the study of animal life (their structure, habits and distribution) such as mammals, birds, reptiles, Batrachians and fishes, which are fully described and illustrated in this new and unrivaled work.

The author, Dr. Abbott, who is the author of several other popular works, published by our leading publishers, has made a special study of Animal Life, and is admirably fitted for the task in hand. He has, in fact, done his work so well, that it is not only a valuable reference volume, but is as interesting as a story for old and young alike. The work is printed on new Long Primer type, never before used, and so clear and plain as to be easily read by all eyes. The paper is strong, substantial and handsomely finished, not like the paper on which many works are printed to-day.

It will be seen that this offer is *limited* to September 30th. *It will not be extended beyond that time.*

Furthermore, the new subscriptions sent in under this offer will be entitled to all of 1888, and October, November and December of this year free. All orders for this work (which will be ready for delivery Thursday morning, Sept. 1st, will be filled, post-paid, in succession as they are received.

The German American Agriculturist.

This is the only purely German agricultural paper in the United States. It comprises all the leading features of the English *American Agriculturist*, together with added departments making it specially adapted for German readers. We are now arranging for still new departments and features this autumn, and want fifty thousand new subscribers. We shall be obliged to our friends and English subscribers, if they will aid us in the work, by furnishing the names of all Germans in their neighborhood who should have such a periodical as the *American Agriculturist*. We will send sample copies and club rates to all such persons.

The New American Agriculturist Gun, $15.00.

The numerous calls for the new *American Agriculturist* gun, described on page 360 of our August issue, together with the responses from those receiving them, indicate that this gun is going to be most popular among our readers. It will be seen from the August description that this beautiful Double Barrel Breech Loader will be supplied for 20 yearly subscriptions to the *American Agriculturist* at $1.50 each.

A Special Premium.

Eastman's Business College at Poughkepsie, N. Y., unquestionably stands at the head of all such institutions in the world. We purpose offering a scholarship in this splendid institution as a Special Premium for subscribers. All young men desiring a thorough commercial education at a small expense should immediately write to us.

READ THIS.

To all who send us, in this month of SEPTEMBER, 1887, their subscriptions (new) for the year 1888

3 Months' Numbers

OF THE

Best Periodical in the World

FOR THE

Farm, Garden & Household,

NAMELY, THE

American Agriculturist

WILL BE SENT

FREE.

Will all our old friends and readers make this offer known to any of their friends or neighbors who do not now take this periodical, to wit:

Those who subscribe NOW, for 1888, will get three months (October, November and December, 1887), or 15 months' papers, for one year's subscription. (See next page)

A Great Ground Swell.

With the exception of July, when the long-prevailing sweltering heat prostrated very many of our agents and workers, our subscriptions have every month this year largely run ahead of corresponding months last year, the increase some months being as high as three, four five thousand a month. At this writing, Aug. 12th, all indications point to a still greater increase during the months to follow, and for next year we are planning and purpose to run our circulation far above One Hundred Thousand. We are not only extending our field of labor through all the States, Territories and Provinces, but likewise through European countries generally. From far away India, Tasmania, New South Wales, and indeed every country of the globe, subscriptions are being received either for our English or German editions of the *American Agriculturist*. We shall thank our friends in every quarter to aid us in the work. Special terms and inducements will be furnished to canvassers and club raisers in every locality.

Read the Advertisements.

FIRST—Because they are reliable.

SECOND—Because they will afford you many new ideas and suggestions as to new tools, inventions, etc.

THIRD—We exclude all quack medicines and everything else of a doubtful character.

Last September we alluded to the fact that our advertisements exceeded the corresponding month of the previous year. And now the fact that the advertisements of this number considerably exceed those of September, last year, affords gratifying assurance of the steadily growing confidence of advertisers in our columns, for reaching a class of readers who are able to and do purchase.

Will all subscribers, in writing to advertisers, please mention the fact that they have seen their advertisements in these columns.

A Great Fair List.

This list of fairs to be held this fall, which we present on pages 402, 403 and 404, is, we believe, the largest and most complete ever published. The data has been obtained by direct application to officials, and others, in every county in the United States and Provinces, and we have spared no pains in making it accurate in every respect.

This list illustrates, as nothing else could, the great development in agricultural pursuits in this country, and displays the enterprise and progressive character of our farming communities. We trust that every reader of the *American Agriculturist* will attend at some one of these fairs, and contribute as far as he can, to making it a success.

In spite of the well-known advantages derived from these exhibitions, there are, we regret to say, a very large number of counties in the United States which hold no fairs this year. Of course, many are accounted for by the fact that in numerous instances, two or three adjoining counties hold union fairs; but, nevertheless, there are far too many lamentable cases where a county has not enough public-spirited men in it to make a fair successful. The reports that have reached us show that there are proportionately fewer fairs held in the Southern States, than in any other part of the Union. It is probable, however, that as the immigration of Northern settlers into the South increases, and the rapidly-growing manufacturing interests begin to exert their influence, this state of things will be changed, and we shall have the South equal in public spirit and enterprise, to the other sections of the country.

Most of the replies received, simply say "No fair." Others vary slightly, with "No fair this season." It betrays a regretable lack of support, when a county association in Pennsylvania writes, "We have concluded not to hold any more fairs." A postmaster in Missouri writes, "Fair at this place gone up, and fair grounds sold."

THE AMERICAN AGRICULTURIST

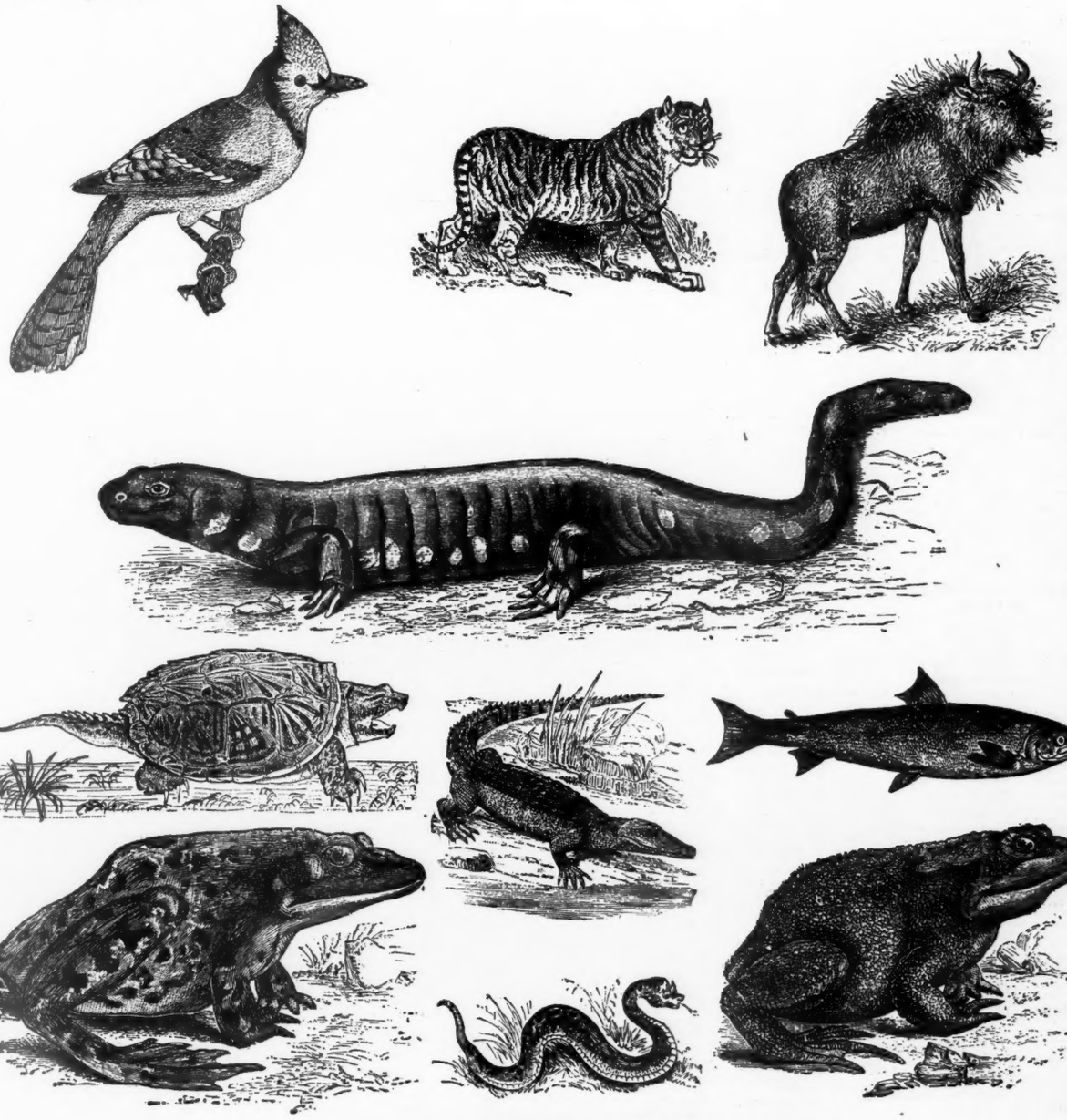
NEW

CYCLOPEDIA of NATURAL HISTORY

READY SEPTEMBER 1, 1887.

PRESENTED FOR NEW SUBSCRIBERS.

☞ A few Specimens of Illustrations in the American Agriculturist Cyclopedia of Natural History. ☜



☞ This Cyclopedia contains 600 pages, 500 Illustrations, and is handsomely bound in cloth. ☜

OUR FREE OFFER.

We will present this invaluable Volume, post-paid, to any person in the United States or British America who sends us one new subscriber to the *American Agriculturist*, at the regular rate of $1.50 per year, before September 30, 1887.

Furthermore, any person sending more than one new subscriber will be presented with one book for each subscriber.

And Furthermore, where ten new subscribers are forwarded, the sender will receive an extra copy—that is eleven books; and, if he chooses, he can therefore present each new subscriber with a Cyclopedia, and have a free copy for himself.

In Addition, every new subscriber sent in under this offer before September 30th will receive the *American Agriculturist* for all of 1888, and be presented with the remaining three numbers of this year free. Orders filled in succession as they are received. Address, *American Agriculturist*, 751 Broadway, New York.

State, County and Other Fairs in 1887.

PREPARED EXPRESSLY FOR THE AMERICAN AGRICULTURIST.

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STATE, PROVINCIAL, etc.

Alabama	Montgomery	Oct. 17-23
Am. Institute	New York	Sept. 28-Dec. 3
Canadian Expos'n	Toronto, Ont.	Oct. 5-17
California	Sacramento	Sept. 12-24
Colorado	Denver	Sept. 13-23
Colorado	Puebla	Oct. 4-8
Connecticut	Meriden	Sept. 13-16
Dakota	Grand Forks	Sept. 19-24
Delaware	Dover	Sept. 26-Oct. 1
Frontenac Prov'e.	Kingston, Ont.	Sept. 27-30
Georgia	Macon	Oct. 24-Nov. 2
G't Central Fair	Hamilton, Ont.	Sept. 26-30
Illinois	Olney	Sept. 24-30
Illinois Fat Stock Show	Chicago	Nov. 8-18
Indiana	Indianapolis	Sep.19-24
Inter-State Fair	Kan. City	Sept. 13-18
Iowa	Des Moines	Sept. 2-9
Kansas	Topeka	Sept. 19-24
Kentucky	Lexington	Aug. 30-Sept.3
Maine	Lewiston	Sept. 6-9
Maryland	Easton	Sept. 19-23
Mass. Hortic'l	Boston	Sept. 13-15
Michigan	Jackson	Sept. 19-23
Minnesota	St. Paul	Sept. 9-17
Missouri	St. Louis	Oct. 3-8
Missouri Fat Stock	Kansas City.	Oct. 27-Nov. 3
Montana	Helena	Aug. 22-27
Mississippi	Jackson	Oct. 17-22
Nat'l Ag'l Exp'n.	Kansas City,	Sept.15-Nov.1
Nebraska	Lincoln	Sept. 9-16
New England Agricultural Society, Worcester, Mass		Aug. 30-Sept. 2
New Hampshire Grange, Tilton		Sept. 13-15
New Jersey	Waverly	Sept. 19-23
New York	Rochester	Sept. 8-14
Nevada	Reno	Sept. 21-Oct. 1
No. Ind. & S. Mich.	Mishawaka, Ind.	Sept.13-16
North'n Wis.	Oshkosh	Sept. 5-9
North Carolina	Raleigh	Oct. 19-21
Ohio	Columbus	Aug.29-Sept. 2
Ohio North We'rn	Fostoria	Aug. 30-Sept. 2
Omaha Expos'n	Omaha, Neb.	Sept. 5-10
Ontario	Ottowa	Sept. 19-24
Oregon	Salem	Sept. 12-17
Pennsylvania	Phila.	Sept. 5-17
Piedmont Exposition, including Va., N. and S. C., Ga., Ala., and Tenn., held at Atlanta, Ga		Oct. 10-22
Rhode Island	Providence	Sept. 19-23
Sixteenth Triennial Exh'n of the Mass. Charitable Mechanics' Institute, Boston, Mass		Sept. 27-Nov. 12
South Carolina	Columbia	Nov. 8-11
So. Dakota	Mitchell	Sept. 26-30
Tennessee	Nashville	Sept. 26-Oct. 1
Texas	Dallas	Oct. 20-Nov. 5
Tri-State Fair	Toledo, O.	Sept. 5-10
Vermont	Burlington	Sept. 12-16
Virginia	Richmond	Oct. 26-28
Washington Ter.	Walla Walla	Sept. 26-Oct. 1
West'n Michigan	Grand Rapids	Sept. 19-23
West'n Nat. Fair	A. Lawrence, Ks.	Sept. 5-11
West Virginia	Wheeling	Sept. 5-9
Wisconsin	Milwaukee	Sept. 12-17
Wis. Industrial	Racine	Aug. 29-Sept. 3

COUNTY AND DISTRICT FAIRS.

ALABAMA.

Dale	Daleville	July 20 —
Limestone	Athens	Oct. 4-8
Montgomery	Montgomery	Oct. 17-24

ALABAMA DISTRICT.

Dallas	Orrville	Oct. 18
Huntsville		Oct. 11-24

ARIZONA.

Maricopa	Phoenix	Oct. 17-22

ARKANSAS.

Independence	Batesville	Oct. 11-13
Jefferson	Pine Bluff	Oct. 19-23
Phillips	Helena	Oct. 18-22
Sebastian	Ft. Smith	Oct. 18-22
Van Buren	Clinton	Sept. 15-20
White	Judsonia	Oct. 12-14

CALIFORNIA.

Industrial Exposition of the Mechanics' Inst., San Francisco,		Sept. 1-Oct. 8
Butte	Chico	Sept. 6-10
El Dorado	Placerville	Aug. 30-Sept. 2
Del Norte & Humboldt	Rohnerville	Sept. 27-30
Lassen	Susanville	Oct. 3-7
Los Angeles	Los Angeles	Oct. 10-15
Monterey	Salinas	Oct. 4-8
Nevada	Nevada City	Sept. 6-11
Sonoma	Santa Rosa	Aug. 22-27
Santa Clara	San Jose	Aug. 15-20

CALIFORNIA DISTRICT.

Siskiyou	Yreka	Sept. 23-Oct. 1
Yuba	Marysville	Aug. 30-Sept. 3
Bay District Association	San Francisco	Aug. 6-13
Sonoma & Marin District Asso'n.	Petaluma	Aug. 29-Sept. 3
San Joaquin, Tuolumne, Stanislaus, Merced	Stockton	Sept. 26-Oct. 8

COLORADO.

Boulder	Boulder	Sept. 27-30
Gunnison	Gunnison	Sept. 21-24
Larimer	Ft. Collins	Sept. 20-23
Weld	Greeley	Sept. 13-16

CONNECTICUT.

Berlin	Berlin	Sept. 23
Fairfield	Danbury	Oct. 4-8
Fairfield	Norwalk	Sept. 13-16
Hartford	Bristol	Sept. 26-30
Middlesex	Chester	Oct. 6 —
Middlesex	Westbrook	Oct. 4-5
Tolland	Rockville	Oct. 4-6
Windham	Brooklyn	Sept. 20-22

CONNECTICUT DISTRICT.

New London	Norwich	Sept. 20-22
Bristol Park Co.	Bristol	Sept. 26-Oct. 1
Clinton	Clinton	Oct. 11
East Granby	East Granby	—
Farming'n Valley	Collinsville	Sept. 21-22
Farmington Valley Agricultural Corporation, Cherry Park, near Canton, Conn.		Sept. 30-Oct. 1
Guilford	Guilford	Sept. 18
Harwinton	Harwinton	Oct. —
Killingworth	Killingworth	Sep. —
Litchfield	Watertown	Sept. 20-22
Madison	Madison	Oct. 13
New Milford	New Milford.	Sep. 30-Oct. 1
Oxford	Oxford	—
Simsbury	Simsbury	Oct. —
Southington	Southington	Sept. 27-29
Stafford	Stafford Springs.	Oct. 12-13
Stafford Agricultural Society, Stafford Springs		Oct. 12-13
Suffield	Suffield	Sept. —Oct.
Union (Monroe, &c.)	Huntington.	Sep. 21-23
Union (Somers, &c.)	—	—
Watertown	Watertown	Sept. 20-22
Westbrook	Westbrook	Oct. 4-5
Willimantic	Willimantic	Sept. 27-29
Woodbridge and Bethany	Woodbridge	Sept. 28
Woodstock	South Woodstock.	Sep.14-15
Wolcott	Wolcott	Sept. —

DAKOTA.

Beadle	Huron	Sept. 21-23
Brown	Columbia	Sept. 22-24
Bonhomme	Tyndall	Sept. 22-24
Charles Mix	Castila	Sept. 14-16
Davison	Mitchell	Sept. 26-29
Day	Webster	Sept. 13-15
Deuel	Gary	Sept. 15-17
Cass & Barnes	Tower City	Oct. 5-7
Clay	Vermillion	Sept. 21-23
Grant	Milbank	Sept. 21-23
Jasper	Latona	Aug. 22-26
Lake	Madison	Sept. 21-23
Lawrence	Spearfish	Sept. 26-29
McCook	Salem	Sept. 20-22
Sanborn	Artesian City	Sept. 21-23
Spink	Ashton	Sept. 20-23
Turner	Parker	Sept. 14-16
Walsh	Grafton	Sept. 20-22

GEORGIA.

Burke	Waynesboro	Nov. 6-8

IDAHO.

Bingham	Eagle Rock	Sp.28-30

ILLINOIS.

Adams	Camp Point.	Aug. 29-Sep. 2
Boone	Belvidere	Sept. 13-16
Brown	Mt. Sterling	Aug. 22-26
Burgan	Princeton	Sept. 6-9
Carroll	Mt. Carroll	Sept. 27-30
Champaign	Champaign	Aug. 23-26
Coles	Charleston	Sept. 13-17
Christian	Pana	Sept. 13-17
Crawford	Robinson	Sept. 20-23
Cumberland	Toledo	Sept. 21-24
DeKalb	Sycamore	Sept. 20-23
DeWitt	Clinton	Sept. 12-16
Du Page	Wheaton	Oct. 4-6
Edgar	Paris	Sept. 5-9
Edwards	Albion	Oct. 18-21
Effingham	Watson	Oct. 11-14
Ford	Piper City	Sept. 13-15
Franklin	Benton	Sept. 20-23
Fulton	Avon	Sept. 20-23
Fulton	Canton	Sept. 6-9
Gallatin	Shawneet'n.	Aug. 30-Sept. 3
Greene	Carrollton	Oct. 18-21
Hancock	Carthage	Sept. 5-9
Hancock	LaHarpe	Sept. 12-16
Hardin	Elizabethtown	Aug. 9-12
Hamilton	McLeansboro	Sept. 13-16
Henderson	Biggsville	Aug. 30-Sept. 2
Henry	Cambridge.	Aug. 29-Sept. 10
Henry	Kewanee	Sept. 26-30
Illinois	Jonesboro	Sept. 13-16
Iroquois	Milford	Aug. 30-Sept. 2
Iroquois	Watseka	Aug. 22-26
Jackson	Carbondale	Oct. 10-14
Jasper	Newton	Sept. 13-16
Jefferson	Mt. Vernon	Sept. 27-30
Jersey	Jersey ville	Oct. 11-14
Jo Daviess	Galena	Oct. 4-7
Jo Daviess	Warren	Sept. 20-24
Kankakee	Kankakee	Sept. 13-16
Kendall	Yorkville	Sept. 13-16
Knox	Knoxville	Aug. 29-Sept. 2
Lake	Libertyville	Sept. 14-17
Lake	Wankegan	Sept. 5-10
La Salle	Mendota	Aug. 29 Sept. 4
Livingston	Fairbury	Sept. 5-9
Logan	Atlanta	Sept. 6-9
Logan	Lincoln	Aug. 29-Sept. 2
Logan, McLean, De Witt & Tazewell	Logan	Sept. 6-9
Macoupin	Carlinville	Sept. 6-9
Marion	Salem	Oct. 4-7
Massac	Metropolis	Oct. 11-14
McDonough	Bushnell	Oct. 10-14
McDonough	Macomb	Sept. 5-9
McHenry	Woodstock	Sept. 20-23
McLean	Bloomingt'n	Aug.30-Sept.2
Mercer	Aledo	Sept. 20-23
Menard	Petersburg	Sept. 6-9
Montgomery	Hillsboro	Sept. 13-16
Moultrie	Sullivan	Sept. 27-30
Ogle	Oregon	Sept. 20-23
Ogle	Rochelle	Sept. 13-16
Peoria	French Grove	Sept. 6-8
Peoria	Dunlap	Sept. 13-15
Perry	Pinckneyville	Oct. 4-7
Piatt	Monticello	Aug. 15-19
Pike	Pittsfield	Sept. 6-9
Pope	Golconda	Oct. 5-8
Randolph	Chester	Oct. 18-21
Richland	Olney	Sept. 24-30
Rock Island	Pt. Byron	Sept. 14-16
Saline	Harrisburg	Sept. 13-16
Schuyler	Rushville	Aug. 16-19
Shelby	Shelbyville	Sept. 20-24
Stark	Toulon	Sept. 20-23
St. Clair	Belleville	Oct. 11-14
Tazewell	Delavan	Sept. 12-16
Tazewell	Mackinaw	Aug. 30-Sept. 2
Union	Anna	Aug. 30-Sept. 2
Union	Jonesboro	Sept. 13-16
Vermillion	Catlin	Sept. 13-16
Vermillion	Danville	Sept. 5-10
Warren	Monmouth	Sept. 13-16
White	Carmi	Sept. 6-10
Whiteside	Albany	Aug. 30 Sept. 2
Whiteside	Morrison	Sept. 6-9
Winnebago	Rockford	Sept. 5-9

ILLINOIS DISTRICT.

Cumberland	Toledo	Sept. 21-24
DeWitt	Farmer City.	Aug.30-Sept. 2
Ford	Piper City	Sept. 13-15
Fulton	Avon	Sept. 20-23
Jackson	Carbondale	Oct. 10-14
LaSalle	Ottawa	Aug. 9-12
Marlon	Centralia	Sept. 13-17
Marshall	Wenona	Sept. 12-16
Saline	El Dorado	Aug. 23-27
Stark	Wyoming	Sept. 13-16
Vermillion	Hoopston	Aug. 22-26
Woodford	El Paso	Sept. 19-23

INDIANA.

Blackford	Hartford City	Aug. 23-25
Boone	Lebanon	Aug. 15-19
Cass	Logansport.	Aug.29-Sept. 2
Clark	Charleston	Sept. 5-9
Clinton	Frankfort	Aug. 22-27
Daviess	Washington.	Sept.26-Oct. 1
Dearborn	Lawrenceburg.	Aug. 23-27
Decatur	Greensb'g.	Aug. 30-Sept. 3
Delaware	Muncie	Aug. 16-20
Elkhart	Goshen	Sept. 20-23
Fulton	Rochester	Sept. 27-Oct. 1
Gibson	Princeton	Sept. 12-17
Grant	Marion City	Aug. 30-Sept. 2
Greene	Linton	Oct. 3-7
Hamilton	Noblesville	Aug. 22-26
Hancock	Greenfield	Aug. 23-27
Harrison	Corydon	Aug. 30-Sept. 3
Henry	New Castle	Aug. 9-13
Howard	Kokomo	Sept. 12-16
Huntington	Huntington.	Sept. 27-Oct. 1
Jackson	Brownstown.	Aug.29-Sept.2
Jasper	Rensselaer	Aug. 30-Sept. 2
Jay	Portland	Sept. 27-30
Jennings	N. Vernon	Aug. 9-12
Knox	Vincennes	Oct. 10-15
La Grange	La Grange	Sept. 27-30
Lake	Crown Point	Sept. 13-16
La Porte	La Porte	Sept. 27-30
Lawrence	Bedford	Sept. 13-17
Madison	Anderson	Sept. 5-9
Monroe	Bloomington	Sept. 27-30
Montgomery	Crawfordsville	Sept. 5-9
Newton	Morocco	Sept. 20-23
Noble	Ligonier	Oct. 11-14
Orange	Paoli	Sept. 7-10
Parke	Rockville	Aug. 15-20
Perry	Tell City	Sept. 13-18
Pike	Petersburg	Sept. 5-10
Porter	Valparaiso	Sept. 20-23
Posey	New Harmony	Sept. 19-23
Randolph	Winchester.	Aug. 30 Sept. 2
Ripley	Osgood	Aug. 16-19
Rush	Rushville	Sept. 13-16
Shelby	Shelbyville	Sept. 7-10
Spencer	Chrisney	Oct. 3-8
Steuben	Angola	Oct. 11-14
Sullivan	Sullivan	Sept. 5-10
Tippecanoe	Lafayette	Aug. 29-Sept. 3
Tipton	Tipton	Aug. 15-19
Vermillion	Eugene	Aug. 22-27
Vigo	Terre Haute.	Aug.29-Sept.2
Wabash	Wabash	Sept. 13-16
Warren	W. Lebanon	Aug. 16-20
Warrick	Booneville.	Aug. 29-Sept. 3
Washington	Salem	Aug. 23-27

INDIANA DISTRICT, ETC.

Acton Fair Asso.	Acton	Aug. 30-Sept. 3
Arcadia Fair Ass.	Arcadia	Aug. 29-Sept. 2
Black Hawk	La Porte	Aug. 30-Sept. 1
Bridgeton Union	Bridgeton	Aug. 22-27
Dearborn	Aurora	Oct. 11-15
East. Ind. Agr'l	Kendallville	Oct. 3-7
Fairm't Union	Fairmount	Sept. 12-16
Fountain, Warren & Verm	Covington	Sept. 20-23
Francisville Ag'l.	Francisville	Sept. 27-30
Henry, Madison & Delaware	Middletown	Aug. 16-19
Inter-State	Fort Wayne	Sept. 27-30
Knightst'n Union.	Knightstown.	Aug.30-Sep.2
Lawrence Dist.	Lawrence	Sept. 12-15
Loogootee Dist.	Loogootee.	Aug. 30-Sept. 3
Miami & Fulton	Macy	Sept. 21-24
New Ross Agr'l.	New Ross	Sept. 8-12
Newton	Washington.	Aug. 30-Sep. 3
Northeastern Ind.	Waterloo	Sept. 26-30
North Manchester Tri-Co	No. Manchester	Oct. 4-7
No. Ind. So. Mich.	South Bend	Sept. 12-16
Orleans Agr'l	Orleans	Sept. 20-24
Perry Co. Agricultural and Mechanical Association		Oct. 3-8
Poplar Grove, A. H. & M. A.	Poplar Grove	Sept.26-30
Seymour Fair Ass.	Seymour	Oct. 4-8
Switzerl'd & Ohio.	East Enterprise.	Sept. 13-16
Union City A. & M. A.	Union City	Sept. 5-9
Urmyville Agr'l.	Urmyville	Oct. 6-8
Warren Tri-Co.	Warren	Sept. 6-10
Washington and Clark	Pekin	Sept. 6-10
Wayne, Henry & Randolph	Dalton	Sept. 6-9
Xenia Union	Xenia	Aug. 24-26

IOWA.

Adams	Corning	Sept. 26-30
Audubon	Audubon	Sept. 20-23
Allamakee	Waukon	Sept. 13-16
Benton	Vinton	Sept. 13-16
Boone	Ogden	Sept. 15-17
Bowen	Glasgow	Sept. 28-Oct. 1
Buena Vista	Alta	Sept. 14-16
Cass	Atlantic	Sept. 27-30
Cerro Gordo	Mason City	Sept. 14-16
Chickasaw	New Hampton.	Sept. 14-16
Clarke	Osceola	Sept. 13-16
Clay	Spencer	Sept. 21-23
Clayton	National	Sept. 27-29
Clinton	De Witt	Sept. 13-16
Crawford	Denison	Sept. 20-23
Dallas	Adel	Sept. 20-23
Davis	Bloomfield	Sept. 27-30
Decatur	Leon	Aug. 30-Sept. 2
Delaware	Manchester	Sept. 27-30
Des Moines	Burlington	Sept.26 -30
Fayette	West Union	Sept. 13-16
Floyd	Charles City	Sept. 21-23
Franklin	Hampton	Sept. 19-22
Greene	Jefferson	Aug. 30-Sept. 2
Grundy	Grundy Centre.	Sept. 20-22
Guthrie	Guthrie Center.	Sept. 27-30
Guthrie	Menlo	Sept. 27-30
Hancock	Britt	Sept. 27-29
Hardin	Eldorn	Sept. 13-16
Harrison	Missouri Valley	Oct. 3-6
Henry	Mt. Pleasant.	Aug. 30-Sep. 2
Henry	Winfield	Sept. 13-16
Howard	Cresco	Sept. 13-16
Humboldt	Humboldt	Sept. 14-16
Iowa	Marengo	Sept. 13-16
Jackson	Maquoketa	Aug. 30-Sept. 2
Jasper	Newton	Sept. 20-23
Jefferson	Fairfield	Aug. 23-26
Johnson	Iowa City	Aug. 29-Sept. 1
Jones	Monticello	Aug. 29-Sept. 2
Keokuk	Sigourney	Sept. 13-16
Kossuth	Algona	Sept. 27-29
Lee	Donellson	Aug. 23-26
Lee	Keokuk	Aug. 9-12
Louisa	Wapello	Sept. 20-23
Lucas	Charlton	Sept. 13-16
Madison	Winterset	Sept. 27-29
Mahaska	Oskaloosa	Aug. 29-Sept. 2
Marion	Knoxville	Aug. 22-26
Mills Central	Malvern	Sept. 27-29
Mitchell	Osage	Sept. 14-16
Montgomery	Red Oak	Sept. 19-23
Monroe	Albia	Aug. 23-26
Muscatine	Muscatine	Sept. 27-29
Osceola	Sibley	Sept. 13-15
Page	Clarinda	Aug. 29-Sept. 2
Palo Alto	Emmettsburg	Sept. 21-23
Ringgold	Mt. Ayr	Sept. 27-30
Sac	Sac City	Sept. 14-16
Shelby	Harlan	Sept. 21-23
Shiawassee	Owasso	Oct. 4-6
Story	Nevada	Sept. 13-16
Tama	Tama	Sept. 13-16
Taylor	Bedford	Sept. 27-30
Union	Afton	Sept. 15-17
Union	Laporte City.	Aug. 30-Sep. 1
Union	W. Liberty	Sept. 13-15
Van Buren	Keosauqua	Sept. 13-16
Wapello	Ottumwa	Aug. 15-19
Washington	Washington	Sept. 20-23
Wayne	Corydon	Aug. 29-Sept. 2
Webster	Ft. Dodge	Sept. 21-23
Winneshiek	Decorah	Aug.29-Sept. 2
Worth	Plymouth	Sept. 15-17
Wright	Clarion	Sept. 13-16

IOWA DISTRICT.

Appanoose	Moulton	Sept. 13-16
Boone	Boone	Sept. 21-24
Brooklyn	Brooklyn	Aug. 31-Sept. 2
Cedar	Mechanicsville	Sept. 13-16
Clayton	Strawberry P't	Sept. 20-23
Cent West Ia.	Odebolt	Sept. 21-24
Creston	Creston	Aug. 29-Sept. 2
Dunlap	Dunlap	Sept. 28-30
E Iowa	Winfield	Sept. 13-16
Harrison	Dunlap	Sept. 28-30
Keokuk	Richland	Sept. 20-23
Mahaska	New Sharon	Sept. 21-23
Manning	Manning	Sept. 14-17
Mechanicsville	Mechanicsville	Sept. 13-15
Milton	Milton	Aug. 30-Sept. 2
Moulton	Albia	Sept. 13-16
Mt. Joy	Davenport	Sept. 6-9
Muscatine	W. Liberty	Sept. 13-15
Nevin	Nevin	Sept. 13-16
New Sharon	New Sharon	Sept. 21-23
Poweshiek Cent.	Malcom	Sept. 13-15
Richland	Richland	Sept. 20-23
Strawberry Point.	Strawberry P't.	Sept. 20-23
Tama	Traer	Aug. 31-Sept. 2
Traer	Traer	Aug. 31-Sept. 2
Union	Creston	Aug. 29-Sept. 2
Van Buren	Milton	Aug. 30-Sept. 2
Wapello	Agency City	Oct. 4-7
West Point	West Point	Sept. 6-9

KANSAS.

Anderson	Garnett	Aug. 30-Sept. 2
Bourbon	Fort Scott	Oct. 4-7
Brown	Hiawatha	Oct. 4-7
Chase	Cottonw'd Falls.	Sept. 28-30
Cherokee	Columbus	Sept. 6-9
Cheyenne	Wano	Sept. 14-16
Cloud	Concordia	Aug. 31-Sept. 3
Coffey	Burlington	Sept. 12-16
Cowley	Winfield	Sept. 5-9
Crawford	Girard	Oct. 4-7
Davis	Junction City	Sept. 20-22
Douglas	Lawrence	Sept. 5-10
Edwards	Kinsley	Sept. 27-30
Elk	Howard	Sept. 22-24
Ellis	Hays City	Sept. 20-23
Franklin	Ottawa	Sept. 27-Oct. 1
Harvey	Newton	Sept. 26-29
Jefferson	Oskaloosa	Sept. 13 16
Jewell	Mankado	Sept. 27-30
Lincoln	Lincoln	Sept. 21-24
Linn	Mound City	Sept. 19-23
Linn	Pleasanton	Sept. 13-16
Marion	Marion	Sept. 6-8
Marion	Peabody	Sept. 14-16
Mitchell	Cawker City	Sept. 6-9
Montgomery	Independence	Sept. 6-10
Morris	Council Grove	Sept. 13-16
Osage	Burlingame	Sept. 27-30

Osborne	Osborne	Sept. 14-17
Ottawa	Minneapolis	Sept. 13 16
Pawnee	Larned	
Phillips	Phillipsburg	Sept. 27-30
Pottawatomie	Wamego	Sept. 6-9
Rice	Lyons	Oct. 4-7
Riley	Manhattan	Sept. 13-16
Rooks	Plainville	Sept. 27-30
Rush	LaCrosse	Sept. 13-15
Salina	Salina	Sept. 7-9
Sedgwick	Wichita	Sept. 12-16
Shawnee	Topeka	Sept. 19-24
Smith	Smith Centre	Sept. 14-17
Sumner	Wellington	Aug. 30-Sept. 2
Washington	Greenleaf	Sept. 21-23
Woods	Neosho Falls	Sept. 20-23

KANSAS DISTRICT.

Linn	La Cygne	Sept. 5-9
Phillips	Phillipsburg	Sept. 27-30
Pottawatomie	St. Marys	Oct. 4-7

KENTUCKY.

Adair	Columbia	Aug. 16-19
Anderson	Lawrenceburg	Aug. 16-19
Bourbon	Paris	Sept. 6-10
Boyle	Danville	Aug. 2-5
Campbell	Alexandria	Aug. 30-Sep. 3
Christian	Hopkinsville	Sep. 28-Oct. 1
Crittenden	Marion	Oct. 18-21
Daviess	Owensboro	Oct. 11-15
Fayette	Lexington	Aug. 30-Sept. 3
Harden	Elizabethtown	Sept. 13-16
Hart	Horse Cave	Sept. 21-24
Henderson	Henderson	Oct. 4 8
Hopkins	Madisonville	Oct. 19-23
Jefferson	Fern Creek	Aug. 23-25
Kenton	Covington	Aug. 23-27
Lyon	Kuttawa	Oct. 4-7
Madison	Kirksville	July 22-28
Mason	Germantown	Oct. 12-15
Mercer	Harrodsburgh	Aug. 9-12
Muhlenberg	Greenville	Oct. 19-22
Nelson	Near Bardstown	Sept. 6-9
Ohio	Hartford	Oct. 4-9
Pulaski	Somerset	Sept. 13-16
Shelby	Shelbyville	Aug. 23-26
Union	Uniontown	Aug. 16-20
Warren	Bowling Green	Sept. 7-10
Washington	Springfield	Aug. 30-Sept. 2

KENTUCKY DISTRICT.

Latona Agricultural Fair	Covington	Aug. 23-27
Young Men's Ky. Fair	Maysville,	Aug. 17-20

LOUISIANA.

Coddo	Shreveport	Nov. 8-12

MAINE.

Androscoggin	Lewiston	Oct. 4-6
Aroostook	Houlton	Sept. 29-30
Cumberland	Gorham	Sept. 27-29
Franklin	Farrington	Oct. 4-6
Franklin	Phillips	Oct. 11-13
Kennebec	Readfield	Sept. 27-29
Kennebec	Waterville	Sept. 27-28
Knox	Rockland	Sept. 27-30
Lincoln	Damariscotta	Oct. 4-6
No. Aroostooke	Presque Isle	Sept. 13-15
Oxford	South Paris	Sept. 27-29
Penobscot	Exeter	Sept. 27-28
Penobscot	Lee	Sept. 29-30
Sagadahoc	Topsham	Oct. 11-13
Somerset	Skowhegan	Sept. 20-22
Washington	Cherryfield	Sept. 28-29
Washington	Machias Park	Sept. 21-22
York	Biddeford	Sept. 27-29

MAINE DISTRICT.

Central Washington Ag'l Society	Machias	Sept. 21-22
Cumberland Farmers' Club	Cumberland	Sept. 21-22
Eastern Maine	Bangor	Aug. 30-Sept. 2
Farmers' and Mechanics' Club	Bridgeton	Oct. 11-12
Gray Park Ass'n	Gray	Sept. 20-22
Harrison Farmers' Club	Harrison	Oct. 5-6
North Waldo Agr'l Society	Unity Trott'g P'rk	Oct. 5-6
York	Cornish	Sept. 13-15

MARYLAND.

Cecil	Elkton	Oct. 4-7
Frederick	Frederick	Oct. 11-14
Harford	Bel Air	Oct. 11-14
Kent	Worton Station	Sept. 20-23
Talbot	Easton	Sept. 20-23
Washington	Hagerstown	Oct. 17-20

MARYLAND DISTRICT.

Caldwell	Hamilton	Aug. 30-Sept. 2

MASSACHUSETTS.

Amesbury & Salisbury	Newburyport	Oct. 4-5
Barnstable	Barnstable	Sept. 27-28
Blackstone Valley	Uxbridge	Sept. 27-28
Berkshire	North Adams	Sept. 20-22
Berkshire	Gt. Barrington	Sept. 28-30
Berkshire	Pittsfield	Sept. 13-15
Bristol	Taunton	Sept. 27-30
Deerfield Valley	Charlemont	Sept. 15-16
Dukes	West Tisbury	Oct. 4-6
Essex	Peabody	Sept. 27-28
East'rn Hampden	Palmer	Sept. 13-14
Franklin	Greenfield	Sept. 29-30
Hampden East	Palmer	Sept. 13-14
Hampshire, Franklin & Hampden	Northampton	Oct. 5-6
Highland	Middlefield	Sept. 7-8
Hingham	Hingham	Sept. 27-28
Mass. Hort'l	Boston	Sept. 13-15
Marshfield	Marshfield	Sept. 14-16
Middlesex	Concord	Sept. 27-28
Middlesex, North.	Lowell	Sept. 21-22
Middlesex, South.	Framingham	Sept. 20-21
Middlesex	So. Framington	Sept. 20-21
Nantucket	Nantucket	Sept. 7-8
Hampden	Holyoke	Sept 21-22
Hampshire	Cummington	Sept. 27-28
Plymouth	Hingham	Sept. 27-28
Plymouth	Bridgewater	Sept. 21-23
Plymouth	Marshfield	Sept. 14-16
Union	Blandford	Sept. 14-15
Worcester, West.	Barre	Sept. 29 30
Worcester, North.	Fitchburg	Sept. 27-28
Worcester, Northwest	Athol	Sept. 20-21
Worcester	Sturbridge	Sept. 15-16
Worcester	Worcester	Aug. 30-Sept. 2

MICHIGAN.

Antrim	Bellaire	Sept. 28-30
Allegan	Allegan	Oct. 4-7
Barry	Hastings	Sept. 27-30
Bay	Bay City	Sept. 14-16
Berrien	Benton Harbor	Sept. 14-17
Berrien	Niles	Sept. 27-30
Branch	Coldwater	Sept. 26-30
Calhoun	Marshall	Oct. 4-7
Clinton	St. Johns	Oct. 4-7
Earnaught	Romeo	Oct. 4-7
Eaton	Charlotte	Oct. 4-7
Gratiot	Ithaca	Sept. 27-30
Genesee	Fenton	Oct. 4-7
Genesee	Flint	Sept. 19-23
Grand Travern	Travern City	Oct. 4-7
Hillsdale	Hillsdale	Oct. 4-7
Isabell	Mt. Pleasant	Oct. 4-7
Jackson	Jackson	Sept. 19-23
Kalamazoo	National Park	Oct. 4-7
Kent	Grand Mapids	Sept. 19-23
Lapeer	Lapeer	Sept. 26-30
Lenawoe	Adrian	Sept. 27-30
Macomb	Armada	Oct. 5-7
Manistee	Onekama	Sept. 20-22
Mason	Ludington	Sept. 13-16
Midland	Midland City	Sept. 14-16
Monroe	Monroe	Sept. 27-29
Monroe	Petersburg	Oct. 4-6
Montcalm	Greenville	Oct. 4-6
New Monroe	Monroe	Sept. 27-29
Oakland	Milford	Oct. 4-6
Oakland	Pontiac	Sept. 27-30
Oceana	Hart	Sept. 27-30
Ogemaw	West Branch	Sept. 27-29
Osceola	Evart	Sept. 28-30
Ottawa	Berlin	Sept. 27-30
St. Joseph	Centerville	Sept. 27-30
Tuscola	Vassar	Sept. 27-30
Union	Ionia	Sept. 27-30
Union	Eaton Rapids	Oct. 5-7
Van Buren	Paw Paw	Sept. 28 30
Washtenaw	Ypsilanti	Sept. 27-30

MICHIGAN DISTRICT.

Armada	Armada	Oct. 5-7
Avon Agricultural Society	Rochester	Oct. 11-14
Buren	South Haven	Oct. 5-7
Cass	Dowagiac	Oct. 4-7
Central Fair Association	Hubbardstown	Sept. 20-23
Central Michigan	Lansing	Sept. 26-30
Clinton	Ovid	Oct. 11-14
Eastern Michigan	Ypsilanti	Sept. 27-30
Eaton Rapids U'n	Eaton Rapids	Oct. 5-7
Fearnaught Driving Association	Romeo	Oct. 4-7
Fenton Union	Fenton	Oct. 4-7
Ingham	Stockbridge	Oct. 4-7
Ionia	Ionia	Sept. 27-30
Lapeer	Hadley	Oct. 4- 6
Milford Union	Milford	Oct. 4 7
North Eastern	Flint	Sept. 19-23
North'n Michigan	Greenville	Oct. 4-7
Oakland & Wayne	Farmington	Sept. 20 23
Union Agricultur'l Society	Plainwell	Sept. 27-30
Wayne	Plymouth	Oct. 4-7
West'rn Michigan	Grand Rapids	Sept. 19-23

MINNESOTA.

Anoka	Anoka	Sept. 6-8
Blue Earth	Garden City	Sept. 6-8
Brown	New Ulm	Sept. 19-21
Chicago	Rush City	Sept. 6-9
Clay	Clyndon	Oct. 4-6
Carver	Chaska	Sept. 23-24
Chippewa	Montevidio	Sept. 24—
Cottonwood	Windom	Sept. 21-23
Dakota	Farmington	Sept. 28-30
Dodge	Kasson	Sept. 20-23
Faribault	Winnebago	Sept. 29-Oct. 1
Fillmore	Preston	Sept. 21-23
Hubbard	Park Rapids	Sept. 7-8
Isanti	Cambridge	Sept. 21-23
Le Sueur	Le Sueur	Oct. 4-5
Lyon	Marshall	Sept. 13-15
McLeod	Hutchinson	Sept. 20-22
Morrison	Little Falls	Aug. 30-Sept. 1
Mower	Austin	Sept. 13-15
Nicollet	St. Peter	Sept. 7-8
Redwood	Redwood Falls	Sept. 21-23
Renville	Hector	Oct. 4-6
St. Louis	Duluth	Oct. 1
Sibley	Arlington	Sept. 28-30
Scott	Shakopee	Sept. 7-8
Todd	Long Prairie	Sept. 20-22
Watonwan	Madelia	Sept. 22-24

MINNESOTA DISTRICT.

Blue Earth	Mankato	Sept. 20-23
Goodhue	Red Wing	Sept. 1-3
Olmsted	Rochester	Sept. 5-10
Red Wing Ind'l	Red Wing	Sept. 1-3
So. Minnesota	Rochester	Sept. 5-10
So. Minn. Live Stock & Fair Association	Mankato	Sept. 20-23
Stearns	St. Cloud	Sept. 27-29

MISSISSIPPI.

Sharkey	Rolling Fork	Oct. 11-15

MISSISSIPPI DISTRICT.

Monroe	Aberdeen	Oct. 25-28

MISSOURI.

Audrian	Mexico	Aug. 9-13
Atchison	Tarkio	Aug. 30-Sept. 2
Barton	Lamar	Sept. 15-19
Bates	Butler	Sept. 15-19
Buchanan	St. Joseph	Sept. 12-17
Callaway	Fulton	Aug. 23-27
Carroll	Tina	Sept. 20-24
Cape Girardeau	Cape Girardeau	Oct. 11-15
Cedar	Stockton	Sept. 26—
Charlton	Keytesville	Oct. 4-8
Clark	Kahoka	Aug. 29-Sept. 2
Clay	Liberty	Sept. 13-16
Dallas	Buffalo	Sept. 28-Oct. 1
De Kalb	Maysville	Sept. 28—
Franklin	Washington	Sept. 8-10
Gentry	Albany	Sept. 12-16
Greene	Springfield	Sept. 5-10
Grundy	Trenton	Sept. 6-9
Jackson	Kansas City	Sept. 15-Nov. 1
Jasper	Sarcoxie	Oct. 4-8
Johnson	Holden	Aug. 23-26
Knox	Newark	Sept. 12-18
Laclede	Lebanou	Oct. 11-15
Lafayette	Higginsville	Aug. 23-27
Lawrence	Mt. Vernon	Sept. 21-23
Lewis	La Grange	Aug. 23-26
Lincoln	Troy	Sept. 27-Oct. 1
Linn	Brookfield	Sept. 14-17
Livingston	Avalon	Aug. 30-Sept. 2
Marion	Hanuibal	Aug. 30-Sept. 3
Marion	Palmyra	Oct. 11-15
Mercer	Princeton	Aug. 30-Sept. 2
Moniteau	California	Sept. 20-23
Monroe	Paris	Sept. 13-17
Montgomery	Montgomery City	Sept. 5-9
Newton	Neosho	Sept. 15-19
Nodaway	Maryville	Sept. 19-24
Pettis	Sedalia	Aug. 15-20
Platte	Platte City	Aug. 30—
Putnam	Unionville	Sept. 21-24
Randolph	Moberly	Aug. 30-Sept. 3
Ray	Richmond	Sept. 12-15
Scotland	Memphis	Sept. 6-9
Shelby	Shelbina	Sept. 6-9
Shelby	Shelbyville	Aug. 29-Sept. 2
St. Charles	St. Charles	Sept. 13-15
St. Francis	Farmington	Sept. 6-10
St. Louis	Clayton	Sept. 12-14
Sullivan	Milan	Sept. 14-17
Vernon	Nevada	Sept. 26-30

MISSOURI DISTRICT.

Belton	Belton	Aug. 16-19
Boone	Columbia	Aug. 16-20
Caldwell	Hamilton	Aug. 30-Sept. 2
Clinton	Clinton	Aug. 31-Sept. 3
Drew	Monticello	Oct. 4-7
Fulton	Fulton	Aug. 23-27
Harrison	Ridgeway	Sept. 20—
Holt	Mallland	Sept. 5-9
Keytesville	Keytesville	Oct. 4-8
Lewis	Williamstown	Sept. 19-24
Lockwood	Lockwood	Oct. 18-21
Moniteau	Tipton	Aug. 9-13
St. Clair	Appleton City	Sept 7-10
Saline	Marshall	Aug. 2-5

NEBRASKA.

Adams	Hastings	Sept. 6-9
Antelope	Neligh	Sept. 28-30
Boone	Albion	Oct. 4-6
Brown	Long Pine	Sept. 21-24
Buffalo	Kearney	Sept. 27-30
Burt	Oakland	Sept. 21-23
Butler	David City	Oct. 4-7
Cedar	Hartington	Sept. 13-15
Clay	Clay Centre	Sept. 27-30
Colfax	Schuyler	Sept. 20-23
Custer	Broken Bow	Sept. 21-23
Dixon	Ponca	Sept. 6-9
Dawson	Plumb Creek	Oct. 4-7
Dodge	Fremont	Sept. 27-30
Douglas	Omaha	Sept. 5-10
Dundy	Benkleman	Sept. 6-8
Fillmore	Fairmount	Aug. 30-Sep. 2
Franklin	Franklin	Sept. 21-23
Frontier	Stockville	Oct. 6-8
Furnas	Beaver City	Sept. 6-8
Gage	Blue Springs	Sept. 20-23
Gage	Beatrice	Sept. 6-9
Greeley	O'Connor	Sept. 27-29
Hall	Grand Island	Sept. 20-24
Hamilton	Aurora	Sept. 21-24
Hayes	Hayes Center	Sept. 21-23
Hitchcock	Calbeston	Sept. 28-30
Holt	O'Neill	Oct. 4-7
Jefferson	Fairbury	Sept. 27-30
Johnson	Tecumseh	Sept. 6-9
Kearney	Minden	Sept. 27-30
Knox	Creighton	Sept. 20-23
Lancaster	Lincoln	Sept. 9-16
Logan	Gandy	Sept. 6-8
Madison	Madison	Sept. 22-24
Merrick	Central City	Oct. 6-8
Nemaha	Auburn	Oct. 4-7
Nuckolls	Nelson	Sept. 21-23
Otoe	Syracuse	Sept. 27-30
Platte	Columbus	Sept. 27-30
Polk	Osceola	Sept. 20-30
Red Willow	Indianola	Oct. 5-8
Richardson	Salem	Sept. 6-9
Sarpy	Papillion	Sept. 20-23
Seward	Seward	Sept. 28 Oct. 1
Thayer	Hebron	Sept. 6-8
Valley	Ord	Sept. 5-8
Wayne	Wayne	Sept. 7-9
Webster	Red Cloud	Sept. 6-9
York	York	Sept. 6-9

NEBRASKA DISTRICT.

Cass	Weeping Water	Aug. 30-S. 2
Logan Valley	Wakefield	Sept. 27-30
Nemaha Valley	Falls City	Sept. 26-30
Richardson	Falls City	Sept. 26-30
Saline	Friend	Sept. 4-7

NEW HAMPSHIRE.

Belknap	Laconia	Sept. 6-9

NEW JERSEY.

Atlantic	Egg Harbor City	Sept. 23-26
Burlington	Mt. Holly	Oct. 10-15
Cumberland	Bridgeton	Sept. 6-8
Essex	Orange	Sept. 26-29
Hunterdon	Flemington	Sept. 27-30
Mercer	Trenton	Oct. 4-7
Monmouth	Freehold	Sept. 13-15
Salem	Woodstown	Sept. 13-15
Somerset	Somerville	Oct. 4-6
Sussex	Newton	Oct. 4-7

NEW YORK.

Allegany	Alfred Center	Sept. 27-29
Alleghany	Cuba	Sept. 13-16
Alleghany	Angelica	Sept. 20-22
Broome	Binimey Point	Sept. 6- 9
Allegany	Whitesville	Oct. 3-6
Cayuga	Auburn	June 17-20
Chautauqua	Dunkirk	Sept. 19-22
Chautauqua	Jamestown	Sept. 5- 8
Chemung	Elmira	Oct. 4-7
Chenango	Norwich	Sept. 20-22
Clinton	Plattsburg	Sept. 6-9
Columbia	Chatham	Sept. 20-22
Columbia	Hudson	Sept. 13-15
Delaware	Hobart	Sept. 8-10
Delaware	Deposit	Sept. 20-22
Dutchess	Wash'n Hollow	Sept. 27-30
Erie	Hamburg	Sept. 20-23
Essex	Westport	Sept. 5- 7
Franklin	Malone	Sept. 27-29
Fulton	Johnstown	Sept. 6 8
Genesee	Batavia	Sept. 20-22
Greene	Cairo	Aug. 31-Sept. 2
Jefferson	Carthage	Sept. 6-8
Lewis	Lowville	Sept. 13-16
Livingston	Geneseo	Oct. 6-7
Montgomery	Fonda	Aug. 31-Sept. 3
Monroe	Rochester	Aug. 30-Sept. 2
Onelda	Rome	Sept. 19-23
Onondaga	Syracuse	Sept. 20-23
Ontario	Canandaigua	Sept. 28-30
Orange	Newburgh	Sept. 20-23
Orleans	Albion	Sept. 22-24
Oswego	Mexico	Sept. 27-29
Otsego	Cooperstown	Sept. 19-21
Putnam	Carmel	Sept. 20-23
Queens	Mineola	Sept. 27-30
Rensselaer	Lansingburgh	Sept. 13-16
Rockland	Spring Valley	Sept. 27-29
Saratoga	Ballston Springs	Sept. 6-9
Schoharie	Schoharie	Sept. 27-29
Seneca	Waterloo	Sept. 27-29
Steuben	Bath	Sept. 27-30
Steuben	Hornellsville	Aug. 29-Sept. 2
Steuben	Prattsburg	Sept. 21-23
St. Lawrence	Canton	Sept. 13-15
Suffolk	Riverhead	Oct. 4-6
Sullivan	Monticello	Sept. 6-8
Tioga	Owego	Sept. 6-8
Tompkins	Dryden	Sept. 26-29
Tompkins	Ithaca	Sept. 14-17
Washington	Fort Edward	Sept. 13-16
Wayne	Clyde	Sept. 14-16
Wayne	Lyons	Sept. 21-23
Westchester	White Plains	Sept. 26-Oct. 1
Wyoming	Warsaw	Oct. 5-7
Yates	Penn Yan	Oct. 4-6

NEW YORK DISTRICT.

Cattaraugus	Randolph	Sept. 26-29
Ulster	Ellenville	Sept. 27-29
Wyoming	Perry	Sept. 29-30

NORTH CAROLINA.

Cumberland	Fayetville	Nov. 9-11
Wake	Raleigh	Oct. 18-22

NORTH CAROLINA DISTRICT.

Pasquotank	Elizabeth City	Oct. 18-20
N. C. Grange Encamp't & Farmer's Institute	Mount Holly	Aug. 10-13
Nash	Rocky Mount	Oct. 3-6
Wayne	Goldsboro	Oct. 26-28

OHIO.

Adams	Winchester	Sept. 27-30
Allen	Lima	Sept. 27-30
Ashland	Ashland	Sept. 6-9
Ashtabula	Jefferson	Sept. 27-30
Athens	Athens	Sept. 28-30
Auglaize	Wapakoneta	Sept. 4-7
Belmont	St. Clairsville	Aug. 31-Sep. 2
Berry	New Lexington	Sept. 28-30
Brown	Georgetown	Oct. 4-7
Butler	Hamilton	Oct. 3-7
Carroll	Carrollton	Oct. 4-6
Champaign	Urbana	Sept. 6- 9
Clarke	Springfield	Aug. 22-26
Clermont	Owensville	Sept. 6 9
Clinton	Sabina	Aug. 22-26
Clinton	Wilmington	Aug. 16-19
Columbiana	New Lisbon	Sept. 27-29
Coshocton	Coshocton	Oct. 11-14
Cuyahoga	Chagrin Falls	Sept. 6-9
Darke	Greenville	Sept. 12-16
Defiance	Defiance	Aug. 29-Sept. 3
Delaware	Delaware	Sept. 13-16
Erie	Sandusky	Sept. 20-23
Fairfield	Lancaster	Oct. 11-15
Fayette	Washington	Aug. 28-26
Franklin	Columbus	Aug. 29-Sept. 3
Fulton	Wauseon	Sept. 20-23
Gallia	Gallipolis	Sept. 15-17
Geauga	Burton	Sept. 14-17
Greene	Xenia	Sept. 7-9
Guernsey	Washington	Sept. 28-30
Hamilton	Carthage	Aug. 16-19
Hancock	Findlay	Sept. 27-30
Hardin	Kenton	Sept. 6-9
Harrison	Cadiz	Sept. 27-30
Henry	Grand Rapids	Sept. 27-30
Henry	Napoleon	Sept. 13-16
Highland	Greenfield	Oct. 4-7
Highland	Hillsboro	Aug. 2-5
Hocking	Logan	Oct. 6-8
Holmes	Millersburg	Sept. 27-30
Huron	Norwalk	Sept. 13-16
Jefferson	Smithfield	Sept. 21-23
Lake	Painsville	Sept. 20-23
Lawrence	Ironton	Sept. 14-16
Licking	Newark	Oct. 4-7
Licking	Hartford	Sept. 6-9
Licking	Pataskala	Aug. 23-26
Logan	Bellefontaine	Oct. 4-7
Lorain	Elyria	Sept. 27-30
Lucas	Toledo	Sept. 5-10
Mahoning	Canfield	Oct. 4-6
Marion	Marion	Oct. 11-14
Medina	Medina	Sept. 6- 8
Mercer	Celina	Sept. 27-30
Miami	Troy	Oct. 5-7
Monroe	Woodsfield	Aug. 30-Sept. 1
Montgomery	Dayton	Sept. 27-30
Morgan	McConnellsville	Sept. 20-23
Morrow	Mt. Gilead	Oct. 4-7
Muskingum	Zanesville	Sept. 27-30
Noble	Sarahsville	Sept. 27-29
Ottawa	Port Clinton	Oct. 5-7
Paulding	Paulding	Sept. 13-16
Perry	New Lexington	Sept. 28-30
Perry	Somerset	Oct. 18-20
Preble	Eaton	Sept. 26-30
Portage	Ravenna	Sept. 27-30
Putnam	Ottawa	Oct. 4-6
Richland	Mansfield	Sept. 27-30
Richland	Plymouth	Oct. 4-7
Pickaway	Circleville	Oct. 4-7
Ross	Chillicothe	Aug. 9-12
Sandusky	Fremont	Oct. 4-7
Scioto	Portsmouth	Sept. 27-30
Seneca	Tiffin	Sept. 27-30
Shelby	Sidney	Sept. 27-30
Stark	Canton	Sept. 26-30
Stark	Marlboro	Oct. 6-8
Summit	Akron	Oct. 5-8
Trumbull	Warren	Sept. 8-10
Tuscarawas	Canal Dover	Sept. 27-30
Union	Marysville	Sept. 27-30
Van Wert	Van Wert	Sept. 6- 9
Warren	Lebanon	Sept. 6- 9
Washington	Marietta	Sept. 14-16
Wayne	Orrville	Sept. 13-16
Wayne	Wooster	
Williams	Montpelier	Sept. 13-16
Wood	Bowling Green	Oct. 4-8
Wood	Tontogany	Sept. 28-30
Wyandotte	Up'r Sandusky	Oct. 4-6

OHIO DISTRICT.

Ada	Ada	Sept. 13-16
Adelphi	Adelphi	Aug. 16-19

Ashtabula	Conneaut	Sept. 14-16
Belmont	Barnesville	Oct. 4-7
Caldwell	Caldwell	Sept. 13-15
Central Ohio	Mechanicsburg	Oct. 4-7
Central Ohio	Orrville	Sept. 13-16
Clinton	Blanchester	Sept. 12-15
Champaign	Mechanicsburg	Oct. 4-7
Clyde	Clyde	Oct. 11-14
Defiance	Hicksville	Sept. 20-24
Free Street Exp.	Steubenville	Oct. 12-13
Fostoria	Fostoria	Aug. 30-Sept. 2
Greene	Jamestown	Aug. 16-19
Greenfield	Greenfield	Oct. 4-7
Hartford	Hartford	Sept. 6-9
Hicksville	Hicksville	Sept. 20-23
Huron	New London	Aug. 16-19
Jamestown	Jamestown	Aug. 16-9
Lorain	Wellington	Aug. 23-27
McArthur	McArthur	Sept. 7-9
Martinsville	Martinsville	Sept. 6-9
Montpelier	Montpelier	Sept. 13-16
Napoleon	Napoleon	Sept. 13-16
Ottokee	Ottokee	Sept. 20-23
Pataskala	Pataskala	Aug. 23-26
Pickaway	Adelphi	Aug. 16-19
Portage	Deerfield	Sept. 22-24
Portage	Garrettsville	Sept. 12 14
Richland	Shelby	Sept. 13-16
Sabina	Sabina	Aug. 22-26
Shelby	Shelby	Sept. 13-16
Smyrna	Smyrna	Sept. 13-15
Somerset	Somerset	Oct. 18-20
Southern Ohio	Dayton	Sept. 26-30
Tri-State	Toledo	Sept. 5-10
Vinton	McArthur	Sept. 7- 9
Washington C. H.	Washington C. H.	Aug 23-26
Wauseon	Wauseon	Aug. 30 Sept. 2
Winchester	Winchester	Sept. 27-30
Youngstown	Youngstown	Sept. 20-23

PENNSYLVANIA.

Armstrong	Kittanning	Oct. 4-7
Armstrong	Parker	Sept. 20-23
Beaver	Beaver	Sept. 27-30
Bedford	Bedford	
Berks	Reading	Sept. 20-23
Blair	Hollidaysburg	Sept. 20-23
Bradford	East Towanda	Sept. 27-29
Bradford	Troy	Sept. 13-16
Bucks	Doylestown	Oct. 4 7
Butler	Butler	Sept. 13-16
Butler	Millerstown	Sept. 6-8
Carbon	Lehighton	Oct. 4-7
Clarion	Clarion	Sept. 27-30
Columbia	Berwick	Sept. 21-24
Columbia	Bloomsburg	Oct. 12-15
Crawford	Conneutville	Oct. 5-7
Cumberland	Carlisle	Sept. 27 30
Dauphin	Gratz	Sept. 20-24
Delaware	Media	
Erie	Erie	Sept. 20-23
Erie	Wattsburg	Oct. 4-6
Fayette	Uniontown	Oct. 4-7
Greene	Carmichaels	Oct. 12-13
Indiana	Indiana	Oct. 4-7
Jefferson	Brookville	Sept. 20-23
Juniata	Port Royal	
Lackawanna	Scranton	Sept. 20-23
Lancaster	Lancaster	Aug. 29-Sept. 3
Lancaster	Lititz	Oct. 3-7
Lehigh	Allentown	Sept. 26-30
Luzerne	Wyoming	Sept. 27-30
McKean	Port Allegheny	Sept. 13-16
Mercer	Mercer	Sept. 21-23
Mercer	Stoneboro	Sept. 28-30
Northampton	Nazareth	Oct. 4-7
Perry	Newport	Sept. 20-23
Potter	Coudersport	Sept. 25-27
Sullivan	Forksville	Oct. 5-7
Susquehanna	Great Bend	Sept. 14-16
Susquehanna	Hartford	Sept. 25-29
Susquehanna	Montrose	Sept. 20-23
Tioga	Mansfield	Sept. 27-30
Tioga	Wellsboro	Sept. 22-23
Union	Lewisburgh	Sept. 21-24
Venango	Franklin	Sept. 6-9
Warren	Warren	Aug. 30-Sept. 2
Washington	Washington	Sept. 13-16
Westmoreland	Greensburg	Oct. 11-14
Wyoming	Finkhannock	Sept. 14-16
York	York	Oct. 4-7

PENNSYLVANIA DISTRICT.

Chester	Oxford	Sept. 28-30
Crawford	Cochranton	Sept. 14-16
Crawford	Woodcock	Sept. 21-23
Edinboro' Agr'l	Edinboro'	Sept. 14-16
Farmers' and Mechanics' Inst.	Easton	Sept. 13-16
Montgomery, Chester and Berks Agr.	Pottstown	Sept. 27-30
NorthernMontour Agr'l Soc.	Washingtonville.	Oct. 18-21
N.W. Agr'l Ass'n.	Corry	Sept. 27-30
Oil Creek Valley Agr'l Soc.	Titusville	Sept. 21-24
Petroleum Agr'l Soc.	Parker's Land'g.	Sept. 20-23
Punxsutawney Agr'l Soc.	Punxsutawney.	Sept. 20-23
Ringtown Agr'l Association	Ringtown.	Sept. 21-23
Tri-State Exhib'n.	WilliamsGr've.	An. 29-Sep. 3
Union Ag'l Ass'n.	Burgettstown	Oct. 4-7
Union Ag'l Ass'n.	Canton	Sept. 20-22
Washington	Burgettstown	Oct. 4-6
Washington	Sandy Plains	Sept. 27-29
Wattsb'g Ag'l Soc.	Wattsburg	Oct. 4-6
Waynesburg Central Fair Ass'n.	Waynesburg	Sept. 20-22
York	Hanover	Sept. 20-23

RHODE ISLAND.

Washington	West Kingston	Sept. 13-15
Washington	Westerly	Sept. 13-15

SOUTH CAROLINA.

Chester	Chester	Oct. 25-28
Darlington	Darlington C. H.	Oct. 26-28
Laurens	Laurens	Oct. 25-26
Marion	Marion	Oct. 4-6

TENNESSEE.

Alexandria	Alexandria	Sept. 22-24
Clarksville	Clarksville	Aug. 23 24
DeKalb	Alexandria	Sept. 22-24
Dyer	Dyersburg	Oct. 18-23
Greene	Greeneville	Sept. 22-24
Giles	Pulaski	Sept. 27-Oct. 2
Lebanon	Lebanon	Sept. 15-18
Monroe	Stillwater	Sept. 20-23
Murfreesboro	Murfreesboro	Sept. 7-10
Nashville	Nashville	Sept. 26-Oct. 2
Obion	Union City	Oct. 4-8
Pulaski	Pulaski	Sept. 30-Oct. 2
Rutherford	Murfreesboro	Sept. 7-10
Shelbyville	Shelbyville	Sept. 15-17
Trenton	Trenton	Oct. 11-15
Wilson	Lebanon	Sept. 8-10

TEXAS.

Shelby	Shelbyville	Sept. 6-10
Tarrant	Fort Worth	Oct. 5—

VERMONT.

Caledonia	St. Johnsbury	Sep. 20-23
Franklin	St. Albans	Sept. 7-9
Lamville	Morrisville	Sept. 27 29
Rutland	Rutland	Sept. 20-22

VIRGINIA.

Accomac	Keller	Aug. 30-Sept. 2
Augusta	Staunton	Oct. 18-21
Culpepper	Culpepper	Sept. 7-8
Fairfax	Grange Camp	Aug. 11-18
Frederick	Winchester	Oct. 11-14
Henrico	Richmond	Oct. 26-28
Loudown	Leesburg	Sept. 13-15

VIRGINIA DISTRICT.

Albermarle	Scottsville	Oct. 5-7

WEST VIRGINIA.

Harrison	Clarksburgh	Sept. 27-30
Jackson	Jackson C. H.	Sept. 5-8
Jackson	Ravenswood	Sept. 13-16
Mason	Point Pleasant	Aug. 23-26
Monroe	Alderson	Sept. 27-3
Richie	Pennsboro	Sept. 21-23
Tyler	Middletown	Sept. 14-16
Tyler	Middlebourne	Sept. 14-16

WISCONSIN.

Adams	Friendship	Sept. 27-29
Barron	Chetek	Sept. 6-8
Brown	De Pere	Sept. 6-9
Chippewa	Chippewa Falls	Sept. 20-23
Clark	Neillsville	Sept. 28-30
Crawford	Seneca	Sept. 20-22
Columbia	Portage	Aug. 30-Sept. 1
Dane	Madison	Oct. 3-8
Dodge	Beaver Dam	Oct. 3-5
Dunn	Menomonie	Sept. 6-7
Grant	Lancaster	Sept. 21-23
Green	Monroe	Sept. 14 17
Iowa	Dodgeville	Sept. 27-30
Jefferson	Jefferson	Sept. 27-30
Jefferson	Watertown	Sept. 19-23
Kewaunee	Kewaunee	Oct. 3-5
La Crosse	West Salem	Sept. 26-29
Manitowon	Manitown	Sept. 26-29
Marathon	Wausau	Sept. 23-25
Marquette	Westfield	Sept. 21-22
Monroe	Sparta	Sept. 6-9
Outagamie	Hortonville	Sept. 28-30
Ozaukee	Saukville	Sept. 27-28
Pepin	Durand	Aug. 31-Sept. 2
Pierce	Ellsworth	Sept. 21-23
Portage	Amherst	Sept. 20-22
Rock	Janesville	Sept. 6-9
Racine	Racine	Aug. 29-Sept. 3
Sauk	Baraboo	Sept. 27-30
Sheboygan	Sheboygan Falls	Sep. 20-23
Taylor	Medford	Sept. 28-30
Trempealeau	Galesville	Aug. 31-Sept. 2
Vernon	Viroqua	Sept. 21-23
Walworth	Elk Horn	Sept. 20-23
Waupaca	Weyauwega	Sept. 27-29
Washington	West Bend	Sept. 28-30
Waukesha	Waukesha	Sept. 6-9
Wood	Grand Rapids	Sept. 20-23

WISCONSIN DISTRICT.

Boscobel Fair	Boscobel	Sept. 27-30
Centr'l Wisconsin.	Watertown	Sept. 19-23
Fond-du-Lac	Fond-du-Lac	Sept. 27-30
Lodi Union	Lodi	Sept. 20-22
No. Wisconsin	Oshkosh	Sept. 5-9
So. Wisconsin	Mineral Point	Sept. 6-9
Portage	Stevens Point	Aug. 30-S. 2
Wis. Industrial	Racine	Aug. 23-Sept. 3

WYOMING.

Johnson	Big Horn	Sept. 13-16
Laramie	Cheyenne	Sept. 6-9

CANADA, etc.

Addington	Newburgh	Oct. 8—
Bay of Quinte District, Belleville,		Sept. 20-23
Berlin Hort'l Exhibition, Berlin,		Sept. 6-8
Brantford Southern, Brantford,		Oct. 11-12
Cayuga	Cayuga	Oct. 7-8
Cen Simcoe Agricultural Ex., Barrie,		Oct. 4-7
Central Wellington, etc., Fergus,		Oct. 4-5
District Leeds Co., Newboro,		Sept 20-21
Eastern Townships, Sherbrooke,		Sept. 13-16
Frontenac, Kingston, Ont.,		Sept. 26-29
Glengarry Co., Williamstown, Ont.,		Sep. 27-28
Great Central	Hamilton	Sept. 26-30
Great Northern Ex., Collingwood,		Sept. 27-30
Lambton Co., Forest, Ont.,		Oct. 6-7
Lincoln Co Union Ex, St Catharines,		Oct. 3-5
Lincoln Co., Smithville, Ont.,		Oct. 6-7
Middlesex Co., Strathroy, Ont.,		Oct. 4 5
Norfolk	Simcoe, Ont.	Oct. 18-19
NorthernExhib'n.	Walkerton, Ont.	Oct. 4-7
Oxford Co. District, Ingersoll,		Oct. 4-6
Oxford Co., Otterville, Ont.,		Oct. 7-8
Peninsular Fair, Kent Co., Chatham, Ont., Sept. 26-29		
Peterboro' Agr'l Ex, Peterboro',		Oct. 4-7
Port Perry	Ont.	Sept. 27-30
Prince Edw'd Is'd	Charlottetown, P. E. I.	
Prince Edward County, Picton,		Oct. 5-6
Province of Prince Edward Island, Summerside,		Oct. 4
Province of Ont., Bowmanville,		Oct. 4-5
Sherbrooke	Quebec	Sept. 13-16
Simcoe	Cookstown	Oct. 7-8
Southern Counties, St. Thomas,		Sept. 27-30
South Grey Exhibition, Durham,		Sept. 27-28
The Central Exhibition, Guelph, Ont.,		Sept. 20-22
Victoria	Lindsay, Ont.	Sept. 20-22
Wellesley & N E Hope, Wellesley,		Sept. 27-28
W Elgin Agr'l Ex, Wallacetown,		Oct. 5-6
Western, London,		Sept. 19-24
Yarmouth	Nova Scotia	Oct. 6-7
York	Toronto	Sept. 5-17

Whitewash for Fences, etc.—C. M. Harris, Westchester county, New York, asks for a recipe for a whitewash that will withstand the weather when applied to fences, out-buildings, etc. Common whitewash is merely a milk of lime, being lime diffused through water, which dissolves but a very small portion of it, and it is soon washed off by repeated rains, especially if they occur soon after the wash is applied and before the lime is converted into a carbonate, which is much less soluble. Various substances are added to whitewash, to make it more permanent, among which are alum, salt, glue, and tallow, or other fats. Fat is one of the most useful of these, as it forms a stereate of lime, or lime soap, which is quite insoluble; but it must be applied hot. One of the best washes is that the formula for which was published by the United States Lighthouse Department, and is used upon the buildings, etc., in their charge. It is made as follows: Slack half a bushel of lime with boiling water, and strain; add a peck of salt, dissolved in warm water; three pounds of ground rice (rice flour), made into a paste in boiling water; one pound of best glue, first soaked in cold water until soft, then dissolved by heating; add half a pound of Spanish white—a superior quality of whiting. It is advised to keep the wash in a large iron kettle, in which it may be heated up when it is to be used. It may be applied to wood, brick, or stone, with ordinary whitewash brushes.

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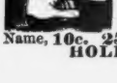

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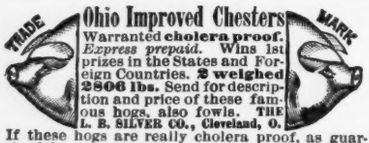

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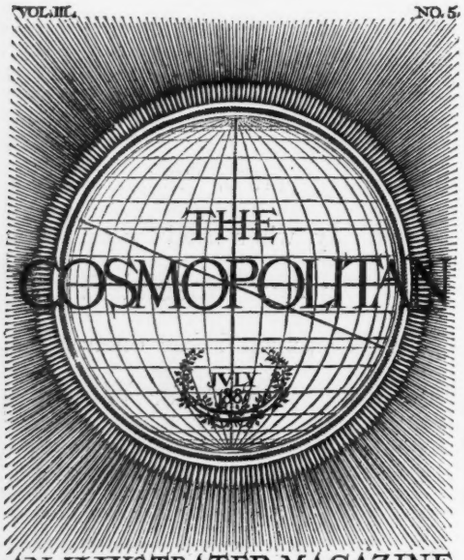

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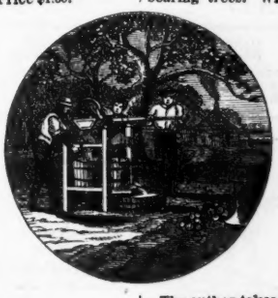

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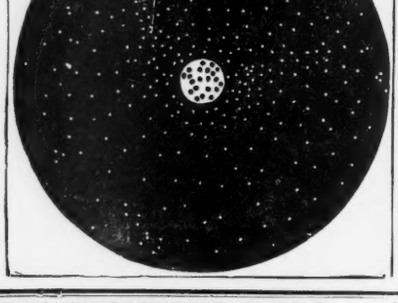

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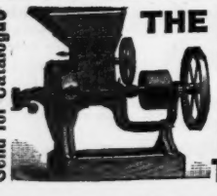

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